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S

Bulletin

Through all the ages books have been stepping-stones to accomplishment.

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SOME INTERRELATIONS OF SEXUALITY, REPRODUCTION AND INTERNAL SECRETION *

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COLD SPRING HARBOR, N. Y.

These fast-moving decades are forcing many new and complicated phenomena into the perspective of the physician and the physiologist. The higher animals and man are continually disclosing subtle mechanisms, capacities and interrelationships of their parts, which challenge persistent research; indeed, their complexity often temporarily baffles the combined best efforts of science. No one supposes that these organisms—and living matter generally—will fail to continue to display still unsuspected powers and adjustments. It is certainly true that at present each step taken in the analysis of the phenomena of sex and of reproduction is more firmly fixing one or another of the organs of internal secretion into an already intricate mechanism.

This communication is principally an outline of some of the interrelationships that have been investigated in our laboratory. These studies are, of course, more directly concerned with an understanding of mechanisms and interrelationships in higher animals than with medicine. This opportunity to indicate some scarcely recognized bearings of certain of these results to medicine will, however, not be lost.

THE NEW KNOWLEDGE OF SEX

Since some parts of this discussion may touch unfamiliar ground, and because the present point of view offers some difficulties of presentation in an abridged form, I shall at once give a summary and forecast concerning the particular capacities and interrelationships of the organism that are to be considered here.

During the past fifteen years it has been demonstrated that the sex of organisms is a reversible and controllable characteristic. Some practical means of such control have already been found for several invertebrate animals, and for such higher animals as frogs and birds. Theoretically, sex has been shown to be everywhere reversible; practically, its control is as yet quite limited. Nevertheless it should soon become evident that this proved reversibility of sex, along with a new knowledge of the real nature of sex difference, is already of some practical and of great theoretical importance both in medicine and in biology.

Concerning the nature of sex difference I shall sketch the evidence that the sexes are fundamentally and causally founded on two different rates of metabolism —different rates prevailing in every stage of their existence from egg to adult. Specifically, it is a sustained increase in metabolic rate that probably has, in experiment, accompanied and accomplished the change of females into males, and it is found that the higher rate is characteristic of the normal male. Conversely, it is a sustained decrease in metabolic rate that has probably accomplished the transformation of males into females; and it is found that a lower rate characterizes the normal female. Chromosomal differences normally decide these two grades of metabolism throughout the early and most sensitive periods of development, and thus the chromosomes normally decide the sex of the organism; but when the experimentalist overrides this chromosomal influence he accomplishes sex reversal. The present evidence on the metabolic nature of sex is not rigorously conclusive, but it is carrying conviction to a growing group of the ablest investigators of the subject.

These particular results thrust themselves into both medicine and biology in several important ways. First of all, sex is as truly a hereditary character as is anything whatever about the organism. The fact that this character is controllable carries with it the full probability that other hereditary characteristics also are controllable, and that the learning of the ways and means for the practical control of other hereditary characteristics of outstanding importance should now become a part of the program or goal of research in biology and in medicine. Not only has the physician been largely ineffective hitherto when confronting the very real and sweeping force of heredity, but during recent decades he has been tacitly advised by most biologists that he must remain so. True, the clinician has sometimes been able actually to observe the melting away, or the transformation, of one or another hereditary characteristic under the power and progress of a specific disease; but most geneticists have been gripped by a too morphologic view during the days of infancy of their science, and heretofore they have been quite unwilling to grant these cases as instances of reversal of hereditary characters. The present status of the problem of the control of sex—effected by experimentalists of this day—justifies the trace of reserve with which, since long ago, the medical observer has accepted heredity as an unconquerable thing. It is now being learned that several different types of individuals can be made to form from any set of hereditary factors that permit an individual to form at all.

In still another way the new knowledge of sex is of importance to the present subject. The discovery of the basic relation borne to sex by metabolism places those endocrine organs which are primarily concerned in regulating the metabolism, notably the thyroid and suprarenal medulla, in a new and close relationship

* From the Carnegie Institution, Station for Experimental Evolution.

with sexuality. If sex has, in fact, a metabolic basis, the thyroids and suprarenals are probably true parts of the sexual system.

Again, by using birds as the chief experimental animal, it has been possible to examine the processes of reproduction in the form in which these processes existed prior to their final and peculiar transformation in mammals and man. Reproduction in birds has been shown to be closely bound up with the action of almost all the organs of internal secretion. Medical men will doubtless wonder what such organs as the parathyroids, suprarenals, pancreas and thymus may have to do with reproduction. It is therefore my purpose to refer to several investigations that bear on this subject. I shall also consider anew the evidence that the embryos of both bird and mammal are affected in a sex-differential way through the circumstance that the ovarian hormone is supplied by the mother to the male and female fetus, and that this hormone exerts an adverse action on parts of the genital apparatus of the male. Finally, I shall consider the evidence that quite all of the internal secretions are primarily concerned with the control of irregular rhythms, and shall thus be led to a word concerning the origin and the evolutional significance of the ductless glands. From this forecast and summary it may be correctly concluded that I have here chosen to examine no one subject in its details, but rather to look about widely for interrelations of sexuality, reproduction and internal secretions.

THE CONTROL OF SEX

I shall first consider a fragment of the new knowledge concerning the control of sex, not alone for the importance of the remarkable developments in that subject, but for the background which the selected illustrations will provide for much that will be said later concerning the relations of the incretory organs to sex and reproduction.

Before our studies were undertaken, Whitman [1] found that, when doves and pigeons are made to produce many eggs each year instead of their usual numbers, the sex ratio obtained from the eggs laid in the later part of the season is notably changed; an excess of females is then obtained. When a female that is made to produce many eggs is mated not with a bird of her own kind but with one of a different genus, Whitman further observed that most of the eggs produced in the early season (winter and spring) would yield males. These observations raised the probability that the sex of some of these eggs had been reversed, but the sex ratios themselves do not prove such a sex reversal. In my own studies I think that proof has been provided, though it is not my intention here to enter into a presentation of that evidence.

Early in my studies [2] it was found that the ova, or egg yolks, produced by these birds in the winter and early spring were of small size; and that, under the forced or rapid egg laying just mentioned, they became progressively larger during the warmer months of the year. It was thus easily shown that ova of small size produce an excess of males and that ova of larger size yield an excess of females. The pigeon, like all birds, produces two kinds of eggs with regard to their prospective sexuality, and in these animals the sperms are all alike. This is the opposite of the situation in the human being, in whom the sperms are of two kinds and the ova are all alike.

A further condition of high interest in sex studies exists in this material. Among pigeons two individuals which belong not only to different genera but to different zoological families are fertile in a cross and can produce hybrids susceptible of being reared to the adult stage. Nowhere else in the animal or plant kingdom has so high a degree of fertility been observed. The remarkable thing is that all of the offspring are males; practically no females appear from a cross of two birds from different zoological families. Here it could be shown that some eggs which should produce females do in fact develop into males when fertilized by so foreign a sperm. Of the evidence on this important matter I here note only that in one fraction of these males oviducts and other evidences of a feminine (chromosomal) influence can be found; in the other fraction the males are wholly normal. In both fractions, sperm-producing testes are the only gonads present. The total evidence seems entirely convincing that the sexuality of an egg that bears the chromosomes and genetic factors for femaleness can have its sexuality reversed by fertilization with very foreign sperm, so that this union of cells will produce a male in which the testes produce well formed sperm.

The readiness and ease with which sex may be reversed in some birds, even after hatching, can be quickly and sufficiently indicated by the following instance: Benoit [3] was able to show that this sex reversal can be accomplished simply by surgical removal of the left ovary of chicks in the first weeks after hatching. The special basis for success here lies in the circumstance that the right ovary is not present in most adult birds. It is present in all female birds at hatching, but it is then smaller than the left ovary and under ordinary circumstances makes little or no further advance in growth and differentiation as an ovary. Benoit allowed these females to grow to maturity, when it was observed that they developed a comb, plumage and other sex distinctions that were essentially those of a rooster—not those of a hen. At autopsy it was found that in the place of the rudimentary right ovary there was now a well developed testicle which showed—as I myself have observed in his microscopic preparations—sperms of normal appearance. A sperm duct had also formed on the right side, connecting the new testis with the cloaca. In these animals it was evident that the internal secretion of the sex gland, as well as its external secretion, was now that of the male, not that of the female, since the secondary sex characters were also reversed. I am aware that some similar studies have not yet been given exactly the interpretation given here. But Benoit's results have been duplicated by workers in various countries and the essential facts are well established. Young birds thus operated on usually or often undergo sex reversal and develop into male adults. In these cases the full chromosomal and genetic equipment which normally brings about femaleness is defeated and reversed by this simple procedure.

Still other undoubted cases of sex reversal in both vertebrates and invertebrates could be cited. It must be concluded that sex is a reversible character; that the chromosomes and genes that normally deliver one sex can be made, in experiment, to develop a well formed individual of the opposite sex. Though not quite the last voice among geneticists has been heard

1. Whitman, C. O.: Posthumous Works, **2**, Carnegie Institution of Washington, Publication 257, 1919.
2. Riddle, Oscar: Sex Control and Known Correlations in Pigeons, Am. Naturalist **50**: 385-410, 1916.
3. Benoit, J.: Transformation expérimentale du sexe par ovariectomie précoce chez la poule domestique, Compt. rend. Acad. d. sc. **177**: 1074, 1923.

against these conclusions, it is reasonably clear that the end of such protests is near at hand.

The significance and importance of these results to biology and to medicine cannot, perhaps, be overestimated. It can now be seen that the theoretical objections to the possibility of ultimate control of all hereditary characters are essentially removed by this demonstration of the clear and complete reversibility of sex characters.

THE NATURE OF SEX DIFFERENCE

The preceding discussion naturally leads to a further examination of the real nature of sex difference. Since sex difference is not finally and inexorably locked up in the gene or genetic factor, where is it to be found? It is becoming possible for a student of heredity to see and know that any hereditary character, as this exists in an adult, is really a result of two things, namely, genetic factors and specific conditions; and as in the case of sex, the genetic factors for sex are ruled out as being finally decisive of a specific sex, one is left to look among specific conditions for the ultimate explanation of sex difference. The things called specific conditions are things which belong to the physical world; they are not left in unapproachable mystery but are open to investigation. In the further analysis of the nature of sex difference, the plain requirement during these last years was to make an examination of all the several cases in which experimentalists have been able to reverse sexuality and there identify the factor, if one exists, that is common to all cases in which females have been changed to males; and likewise the factor common to all cases in which males have been changed to females.

In a recent publication [4] I fully considered this question for each of the score of animal types in which complete or partial sex transformation has been repeatedly accomplished. Space will not permit such an examination of the evidence here, but the only conclusion that has been drawn from those sources is that, when the reversals have been made in a male-to-female direction, the procedure adopted by the experimentalist was such as would lower the rate of metabolism; and when changed in a female-to-male direction, the procedures would lead to an increased metabolism in the treated eggs or individuals.

In one measurement, made in the bird world, the results can be read in terms of metabolism (chart 1). The tops of the polygons tell something of metabolic and sex differences at different seasons. It was earlier noted that doves and pigeons give, under certain conditions, marked seasonal differences in sex ratios. During the winter months, with winter (January, February, March) really defined as the three month period during which the thyroids of the doves are most enlarged, the sex ratio is only eighty females per hundred males, while in summer there are 135 females per hundred males. The ratios shown here are based on tests of 1,074 individuals. From these birds other eggs than those incubated in the sex ratio work were taken for another study.. In the second study, egg yolks were isolated during all seasons and burned in a bomb calorimeter in order to learn the amount of energy stored during the various seasons. It is seen that this storage metabolism is lowest when fewest females are being produced (i. e., in winter) and highest in summer when the proportion of females is highest. Here the experimental error in determining the energy in a single ovum is less than 1 per cent, and there can be no question whatever of the meaning of the figures here constructed from our measurements. Female-producing eggs store much material and burn little; they have a low metabolism. In predominantly male-producing eggs, less is stored and more is burned; they have a higher oxidizing rate.

It could further be shown that indirect measurements on the metabolism of more than 2,100 embryos have given some uniform and definite, though not really conclusive, evidence that male embryos also utilize oxygen in greater amount than do female embryos of the dove and pigeon.

Further examination of chart 1 will show that a well marked seasonal change of weight in the thyroid glands

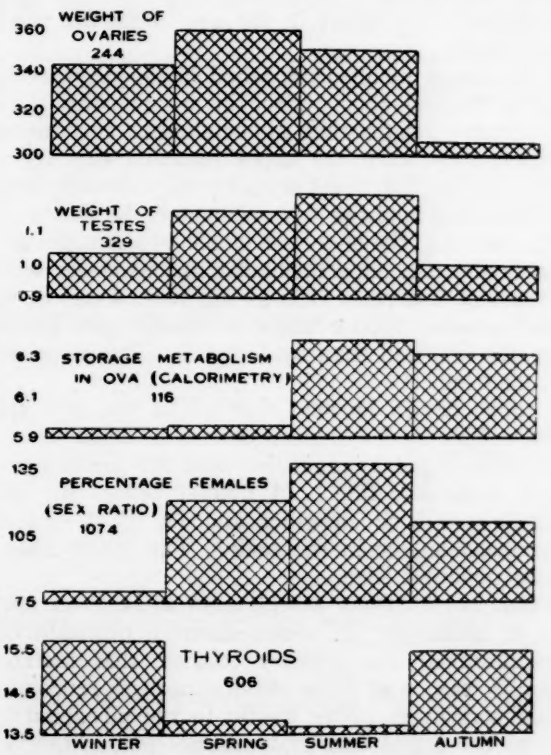

Chart 1.—Summaries of seasonal differences of sexuality and metabolism in ring doves.

of the animals has been found. The thyroid is largest during the cold weather of autumn and winter; it is smaller in the months of spring and smallest in summer. These results are wholly uncomplicated by diet, since our experimental animal is ideal for this test in that it feeds on precisely the same dry grain food at all months of the year. It may be observed also that the ovaries and testes enlarge at precisely those seasons during which the thyroid is diminishing; ovaries and testes are smallest at the season of largest thyroid size. It will be observed that only the tops of the polygons are represented here, since what I now wish to accentuate is merely the seasonal differences.

I have referred to our measurements of metabolism of the sexes in the egg stage and in the embryo stage of our material. At present, in collaboration with Prof. F. G. Benedict of Boston, I am making an intensive and extensive study of the basal metabolism of young and adult animals. The fact that the work is being done on about thirty-five races, and on several

4. Riddle, Oscar: Proofs and Implications of Complete Sex-Transformation in Animals, Verhandl. I. Internat. Kong. f. Sexualforschung, Berlin **1**: 193-218, 1927.

kinds of hybrids, so divides the accumulating data as to prevent for the present a definite statement on the relation of metabolism to sex in the two later life periods of our animals. Already, however, the results of our collaborative study point to some interesting relations of metabolism to sex. I shall refer here in the briefest terms to three apparent results. Males appear to have their basal metabolism more reduced than do females by prolonged periods of enforced inactivity, and also by shorter exposure to and measurement at high temperature. The first generation offspring or hybrids of a cross appear to have a higher basal metabolism than that of either of the parent races that entered the cross. The latter finding, if supported by further study, beautifully supports our earlier interpretation of the observed fact that the widest crosses in pigeons give males only; the mere act of crossing appears to increase the metabolic rate, and when this is sufficiently increased in the egg stage the result is sex reversal.

If the three results just noted hold—they are being much extended—they reflect in a new way the real and primary relationship of metabolism and sexuality. Further, they warn the experimentalist that when he places (as we did here) a male and a female under a condition that modifies the metabolism, he is not necessarily affecting the two individuals to the same extent. And, finally, the experimentalist must wonder whether the medical fraternity fails to encounter cases in which conditions that impose lower metabolic rates are borne by males less well than by females. This is presented as a question.

I think it can be said that all of the few species examined by modern measurements of truly basal heat production agree in indicating that the males have the higher metabolic rate. In human beings the values, according to both Benedict and Du Bois, are about 6 per cent higher in the male. The other cases will not be reviewed here.

These observations would seem to have an application in medicine. It seems entirely probable that a recognition of the primary relation that metabolism bears to sex, and thus also to normal reproduction, would sometimes prove useful to the physician. The rate of the actual temporary metabolism in individuals is not changeless but notably plastic. It is markedly influenced by such things as activities, occupation, excitement, nutrition and habits. Since sex, in favorably early stages and under prolonged metabolic changes, may be completely reversed, can it be that the wide and often nearly continuous fluctuations in the metabolism produced in these ways are of no effect on those sex characteristics which develop only at and even after adolescence? Is the increased metabolism of the female professional athlete favorable to her sex development and reproductive functions? Is the shifting of the metabolism, though capable in the egg stage of completely reversing the sex of the individual, quite incapable, when continued over many years, of affecting in grown and growing persons the nature or degree attained by those sex characters which then develop? These are questions which present knowledge of the physiology of sex must address to the medical profession. From the standpoint thus developed in this paper, as well as from common experience, it would appear that many more things may be done for sex disturbances than are involved in the loan of an interstitial gland.

INTERNAL SECRETIONS AND SEX

If metabolism bears the primary relation to sex which I have sketched, then those incretions which markedly affect and regulate the rate of metabolism in higher organisms bear a very close relation to sex. Such now known incretions are of course thyroxin and epinephrine. The thyroid and the suprarenal medulla thus become—in addition to the place they occupy in our usual thought—intimate parts of the sexual system. If any of the other incretory organs are later found to have similar definite effects on the metabolic rate, those organs also will take their place as parts—either as true or as closely associated parts—of the sexual system. That the testis and ovary, together with their incretions, are truly sex things is of course unquestioned. With this enlarged list of essential sex organs, I conclude the discussion of the interrelationships of sexuality and the internal secretions. In my opinion the organs primarily concerned in regulating metabolic rate are true parts of the sexual system.

INTERNAL SECRETIONS IN REPRODUCTION

The relation that a much larger number of internal secretions bears to the processes of reproduction may now be considered. It is well known that sex and reproduction are often so interrelated that it is difficult to classify a process as one and not as the other. When there is doubt I have preferred to treat the doubtful thing under the head of reproduction; but usually sex remains near at hand. In fact, my subject deals with sex, with reproduction, and with internal secretions, purely because in this work it has proved impossible to study any one of these three things apart from the other two. At the outset, it should be brought to mind that the pigeon offers unrivaled advantages for studies in reproduction because of the single fact that the hour at which each egg leaves the ovary can be known. It is possible also to know the exact age of the animal at the time the ovary first releases an ovum, as well as the time relations of still other aspects of reproduction.

Within two years P. E. Smith,[5] in this country, and Zondek and Aschheim[6] in Germany, have shown that the daily transplantation of anterior lobes of pituitary into infantile mice and rats effects a definite premature sexual function in infantile mice and rats. In considering this discovery it should be realized that the so-called sexual maturity said to result from the administration of the ovarian or follicular hormone has proved a complete mistake. Ovarian function is not induced by that hormone. Its effects are limited to the uterus, vagina and other accessory reproductive structures. But that a specific action, on both testis and ovary, is exercised by something contained in the anterior pituitary is now a demonstrated fact. The complete data that serve to extend to birds the results earlier obtained in mice and rats are in process of publication.[7] In this study the glycerin extracts of the fresh anterior pituitary of the ox, injected daily during seven to seventeen days, caused a most extraordinary growth in the testes of every male dove thus treated. Within this short period of treatment our data indicate that the normal weights of the testes were multiplied from two to seventeen times. The females treated by us show less marked but definite effects.

5. Smith, P. E.: Hastening Development of Female Genital System by Daily Homoplastic Pituitary Transplants, Proc. Soc. Exper. Biol. & Med. **24**: 131-132 (Nov.) 1926.

6. Zondek, B., and Aschheim, S.: Das Hormon des Hypophysenvorderlappens, Klin. Wchnschr. **6**: 248 (Feb. 5) 1927.

7. Riddle, Oscar; and Flemion, Florence: The rôle of the anterior Pituitary in Hastening Sexual Maturity in Ring Doves, Am. J. Physiol. **87**: 110-123 (Nov.) 1928.

Beyond question the anterior pituitary exerts a force pressing toward early sexual maturity in higher animals. With this fact established, the question arises whether there is any agent present in these organisms that is tending to delay the onset of sexual maturity—an agent that prevents the occurrence of maturity during infancy. On this further point the pigeon has supplied some important evidence.[8] This evidence indicates that the thymus, together with a large and peculiar structure found only in young birds and called the bursa Fabricius, has such a retarding action on the attainment of sexual or reproductive function. The testes and ovaries grow at an exceedingly slow rate during the time that the thymus and the bursa Fabricius, which Jolly has called a "cloacal thymus," grow rapidly. Testes and ovaries strike up an entirely new rate of growth precisely at the time that the bursa and thymus begin to involute. Further, the bursa normally completely disappears before the first ovulation in life; it also disappears early in birds that mature early, and disappears late in birds that mature late. The secretion of the anterior pituitary presses for early sexual maturity; a secretion or action of thymus and bursa tends to push the time of beginning reproductive function to a later period. Here there is reason for regarding the point or time at which maturity is actually attained as a resultant of these two forces.

Since thymus extirpation in mammals has not uniformly been reported to hasten sexual maturity, I venture the suggestion that the thymus of mammals, like the thymus of birds, does not comprise the total tissue that has thymic function in man and mammals. At first thought this appears unreasonable. But in the bird there is now weighty evidence that another juvenile organ, the bursa Fabricius, exercises this thymic function, though it is separated by the full length of the body from the true thymus. Remembering the common ancestry of birds and mammals, and the difficulty with which the function of this quite large accessory thymus has been disclosed in birds, one is tempted to expect a similar result from further search among some of the little known structures of mammals.

A little later it will be seen that the blood sugar is increased at and near every period of ovulation in the pigeon. Since this glycemia seems invariably to accompany ovulation, it was thought well to find out whether the final growth and dehiscence of ova from the ovary could be prevented by keeping the sugar low by means of insulin. Moderate dosage, given twice daily to ten females during one month, was observed to suppress 90 per cent of the ovulations that should have occurred during this period. Though these results do not show that the incretion of the pancreas is definitely related to reproduction, they suggest that the islets do not combat—or at any rate they do not successfully combat—the glycemia of ovulation, though this glycemia persists in the bird for a total of at least six days. To this extent the internal secretion of the pancreas seems to share in the processes of vertebrate reproduction.

A series of blood and endocrine changes that have been found to occur coincident with every ovulation period in the pigeon is shown in chart 2. The central vertical lines indicate the points in time at which an ovum or yolk leaves the ovary. Time is read on the base line from left to right. The size or amount measured is expressed as height from this base line. It will be noticed that two yolks break away from the ovary—the first, at the left vertical line; the second, occurring forty-four hours after the first, at the vertical line on the right. This interval between the two ovulations is called the "ovulation period." A period of 108 hours preceding the first ovulation is called the preovulation period; a similar period following the ovulation of the second ovum is called the postovulation period. These periods are well defined and natural. Measurements have shown that one of the small eggs of the ovary takes up a new rate of growth, a rate twenty-six times its former rate, at about 108 hours before it attains full growth and breaks away from the ovary.

It will be observed also that the oviduct or uterus, which conducts the eggs from the ovary to the exterior, begins a new growth at precisely the same time that the first ovum starts its new rate of growth. It is, of course, the ovarian or follicular hormone produced

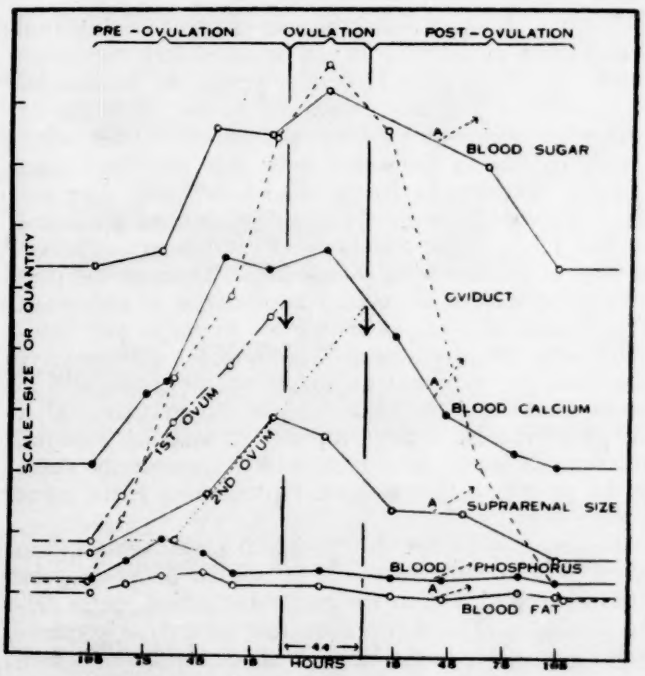

Chart 2.—Metabolic changes at ovulation.

within the ovary that here awakens the resting oviduct and causes it to begin a degree of hyperplasia which, so far as I am aware, is practically unequaled elsewhere among normal adult tissues. Under the stimulus of this internal secretion of the ovary—we know it is such for we have successfully replaced it with follicular fluid from the sow—the oviduct increases its weight by 1,000 per cent within a period only a little longer than 108 hours. Later, only 108 hours following the second ovulation, the oviduct has again atrophied and shrunk to its normal resting condition. Here it is clear that the growth stimulating hormone which is released from the ovary is produced during a short period of time only, certainly not after the release of the second ovum from the ovary. The follicular hormone is secreted in the bird only during the time an ovum is ripening in the ovary. It is here also clear and certain that the hormone does not have its origin in a corpus luteum, which is nonexistent in birds, but probably in the follicular cells, in which the period of hyperplasia coincides precisely with the liberation of this ovarian hormone,

8. Riddle, Oscar: Growth of the Gonads and Bursa Fabricii in Doves and Pigeons, with Data for Body Growth and Age at Maturity, Am. J. Physiol. **86**: 248-265 (Sept.) 1928.

as shown by the time of the phenomenal growth in the oviduct.

From the curve which describes the size or weight changes observed in the suprarenal glands (chart 2) it is seen that at the same time that the first ovum starts its rapid growth, the suprarenals also begin to increase in weight; the maximum increase (for several kinds of pigeons and doves) averages nearly 40 per cent above normal, and this maximum occurs closely coincident with the time at which the ova leave the ovary. Histological examination of a few of these glands suggests that both cortex and medulla share in this overgrowth. Since one of the effects of epinephrine is to increase the amount of sugar in the blood, a measure of the blood sugar at ovulation could be used as one test for an increased action of the suprarenal medulla at ovulation. The blood sugar was found to increase by about 20 per cent. This increase, together with the probable increased volume of the medulla itself, gives evidence that more epinephrine is being poured into the blood at this period.

A curve showing blood calcium changes at ovulation is also given in chart 2. It will be noted that, 108 hours before an ovum is to leave the ovary, the amount of blood calcium begins to increase. At the beginning of this period there were 9.5 mg. per hundred cubic centimeters of blood; 130 hours later this was more than doubled, reaching 19.9 mg. The male blood does not show a notable change. The measurements are based on 191 birds. The results have since been confirmed in fowls. Of course no change of such magnitude, possibly no change at all, occurs at ovulation in mammals. The change in birds is, moreover, in some way associated with the preparation of calcium for a prospective egg shell, the secretion of which will begin about 123 hours after the blood calcium begins to increase. That the parathyroids, in their capacity to mobilize calcium, are thus indicated as organs which importantly share in the processes of vertebrate reproduction is the point I wish to make here.

The amount of fat and of lipoid phosphorus in the blood was recently measured at normal periods in the life of the bird, and at the particular period under discussion here. The curves show that both these elements begin to increase in the blood at about 108 hours before an ovum is ovulated. Both fat and phosphorus attain maximum values early in the preovulation period, instead of coincidentally with the ovulation period as was found for other constituents of the blood. From this fact some evidence, though incomplete, was obtained that a hormonal or other influence of the ovary is responsible for these two changes, in addition to causing the oviduct to enlarge.

From what is seen in these curves it is clear that the means by which the ovary is stimulated to begin its work needs to be known. In an earlier part of this paper, the anterior pituitary was identified as the stimulating agent for the first ovulation in life; the same organ is probably concerned in the recurring ovulations.

This concludes the examination of the considerable series of changes in the activity of a number of organs of internal secretion, all of which are closely timed to the period of growth and release of an ovum. The data given in chart 2 summarize as completely as is now possible the fine adjustments effected by internal secretions to meet one single phase of reproduction. In still other aspects of the complicated processes of reproduction, however, it can further be shown that the endocrine organs play the chief part.

Reference may next be made to some clear evidence that an important function, probably the primary function, of the thymus is concerned with reproduction. In our material, which happens to be animals that place albumin, egg membranes and egg shell around each ovum, it could be shown that the production of these several substances is apparently under the control of a thymus hormone, for which I have suggested the name thymovidin.[9] In the absence, or practically complete absence, of a thymus it was found that, though the ovary could function normally and could produce ova of normal size, little or no albumin and shell could be secreted. Under these conditions it was found that the oral administration of desiccated ox thymus—and this tissue alone among the substances tested—immediately enabled the bird's oviduct to secrete normal amounts of egg albumin, to prepare shell membranes in a normal condition and to secrete complete egg shells—all of which had been deficient and abnormal before such dosage.

A condensed summary of data obtained from one of five female doves, in which a disappearance of the thymus permitted such a test, is given in the accompanying table. Preceding dosage, the total weight of the eggs was only half of the normal and this reduction in weight was effected in the egg envelops only; the yolk weights had remained normal—about 2 Gm. In this case the bird could ovulate normally; but instead of a large amount of egg albumin only one third of this amount of a watery secretion, not coagulable by heat and giving other reactions of ovomucoid, was obtained; deficient shell membranes were secreted and on these membranes there were laid down relatively insignificant amounts of calcium carbonate, so that all of these eggs were soft-shelled and embryos could not be hatched from any of them. However, the very first pair of eggs, and more than thirty immediately following, became entirely normal in all these respects immediately following the repeated daily dosage of this bird with 20 mg. of desiccated ox thymus. After dosage was discontinued its effects lasted during several months; even after nearly nine months the egg size, though notably diminished, had not reached the small predosage weight. The eggs still weighed 6.6 Gm. At this point thymus dosage was again tested and again all of the egg envelops were at once restored to normal. The bird was killed for examination, and it was found that the thymus was nearly or completely absent. The two long strands of fibrous tissue that encapsulate the thymus could be identified and dissected out and were found to weigh altogether only 31.5 mg. It is doubtful whether these strands contained any real thymus tissue.

Effects of Thymus Feeding on Secretion of Egg Envelops in Bird A 622

Dosage or Control	Number of Eggs	Average Weight	
		Eggs, Gm.	Yolks, Gm.
Control	10	4.67	(2.125)
Dosed	9	8.87	.....
Control	22	8.49	(2.010)
Control	22	7.72	(2.247)
Control	6	6.66	(2.287)
Dosed	5	9.05	(2.287)
Control	2	9.52	2.351

In all, five birds of this type have been investigated, two of the five being dosed a second time with thymus.

9. Riddle, Oscar: A Hitherto Unknown Function of the Thymus, Am. J. Physiol. **68**: 557-580 (May) 1924.

In all of the seven tests the results were practically uniform. Rarely have I obtained a more clear-cut experimental result than was obtained in these cases. To me these results declare and decide an important function of the thymus—a function primarily concerned with reproduction. It appears probable that this organ developed in early vertebrates to assist in regulating the rhythmic building of the complicated egg envelops which are present in all vertebrates except mammals, and are still present even in the lowest mammals. In higher mammals and man these particular functions have been lost long ago, simultaneously with the acquirement of a type of internal reproduction that entirely dispensed with the preparation by the uterus of egg albumin, shell membranes and egg shell. If this is true the failure of numerous efforts to learn the real secret of this organ through studies of its condition in man and other mammals can readily be understood. But studies made on birds—on animals retaining the primitive reproductive method of the lower vertebrates—have readily cleared up this matter.

In our material it is now possible to show a further and quite unusual relationship of some endocrine organs to reproduction. I refer to seasonal size changes that occur in such organs coincident with seasonal changes in reproduction. In chart 3 the changes observed in six organs have been presented. The liver and spleen are included, not as truly endocrine but as closely associated organs. When these diagrams—which again picture differences only—are observed, it may be recalled that such a series of seasonal changes has thus far not been worked out for any other animal, even man. The data on seasonal change in thyroid size are the same as those observed in chart 1. This is true also for the data on seasonal change of weight in testes and ovaries. The data on blood calcium (interpreted as parathyroid activity) are known for three of the four reasons. The spleen and liver, like the three organs last mentioned, all show their highest weight during the warmer months of the year, which coincides with the period of smallest thyroid weight. The two periods of largest thyroid size are the periods of smallest size in all of the other five organs. But I am here particularly interested in the fact that the spring and summer periods are likewise the real periods of active reproduction. With exposure to full winter conditions, when the thyroid is largest and most functional, reproduction is practically suppressed in these animals. While the thyroid weight is lowest, or perhaps more truly while it is undergoing a definite decline in weight and function, the period of riotous reproduction occurs in these animals. In considering these pronounced seasonal changes it should be remembered that the animals used were forced to meet winter conditions largely through increased thyroid action; man, in contrast, now provides himself with various effective substitutes for a great increase in thyroxin output.

One further aspect of the relation of hormones to reproduction has been partially investigated. In the newly hatched young of all kinds of doves and pigeons, an unexpected disparity is found in the size of the testes and ovaries. A similar size difference also exists in embryos of the fowl. At the end of embryonic life the ovaries of these birds are about twice as large as the testes, although the adult testis is from three to five times larger than the adult resting ovary. Now, what does this mean? When these facts are considered in the light of Fellner's recent demonstration that the yolks of eggs contain large amounts of the ovarian or follicular hormone, and of our own further observation [10] that this hormone exercises an adverse or retarding action on the development of testes and other accessory sex organs of the male, I think the meaning may be discovered and found to be of some medical interest.

The observations just noted also fit themselves to several well known things. A number of workers have described adverse effects of this hormone on the testes of young rats, rabbits and guinea-pigs. Again, there is some experimental evidence that this hormone passes through the placenta from mother to fetus. Still other well known observations on the condition of certain fetal organs, in the light of present knowledge, strongly suggest that the ovarian or placental hormone does enter the mammalian and human fetus and cause definite developmental changes there. The changes of

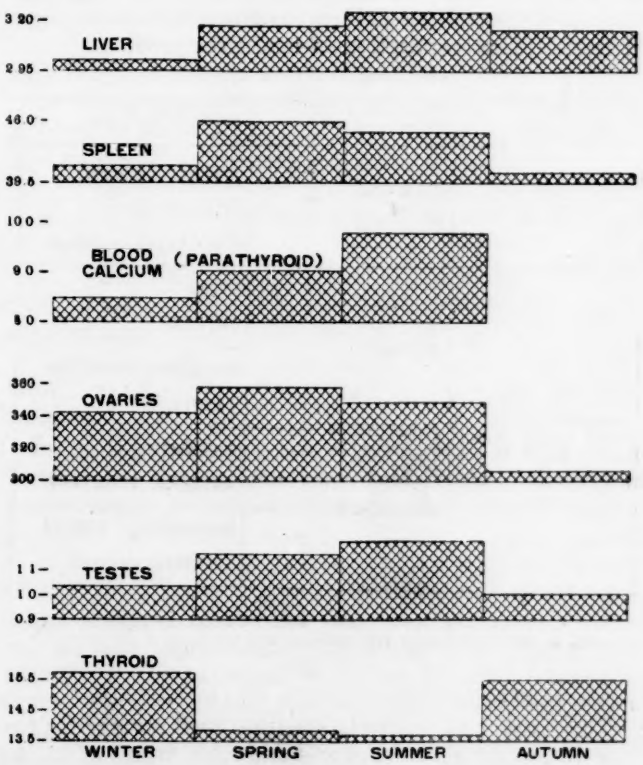

Chart 3.—Seasonal size changes in endocrine organs.

adverse nature that have been described or suggested chiefly concern parts of the genital system of the male; apparently adverse effects in the fetal testis of the horse may have such an origin. Other examples of the probable action of such a hormone are the enlarged uterus and the enlarged suprarenals and mammaries in the new-born of both sexes. May not the last-named typical actions of the ovarian hormone be regarded as indeed the action of ovarian hormone that has traversed the placenta from mother to fetus, and into male and female fetus alike? And may not the adverse effects on parts of the male genital apparatus now be regarded as an action of the same hormone? Certain it now is that these adverse effects follow the administration of this hormone to males in early postnatal life. It is further certain that the male bird embryo is subjected to the action of this hormone, and that the size of its

10. Riddle, Oscar; and Tange, Masaharu: The Action of the Ovarian and Placental Hormone in the Pigeon, Am. J. Physiol. **87**: 97-109 (Nov.) 1928.

testis is unexpectedly small. In man and mammals, the known facts appear to be in full agreement with this interpretation. It is thus observed that the general method of reproduction in both birds and mammals probably manages to subject every embryo—male and female alike—to prolonged dosage with a female hormone.

This completes the review of the relation of a long series of internal secretions to processes of reproduction. Taking a broad view of the subject it looks as if the sort of investigations outlined here, within reasonable time, should successfully place reproduction on a completely biochemical basis; that these processes are normally controlled wholly by endocrines, and that, though nervous disorder may bring reproductive failure, nerve action has little or no direct share in the processes of normal reproduction. Again, the constantly enlarging rôle of the internal secretions in both sex and reproduction naturally leads, while the facts already developed are before us, to a still broader view of them. That conception is next presented.

METHOD OF SECRETION	UNRELATED TO REPRODUCTION AND SEX	RELATED TO REPRODUCTION OR TO SEX
RHYTHMICALLY SECRETED	(GASTRIN) SECRETIN	(CORPUS LUTEUM) (PLACENTA) (FETAL—FOR MILK SECR.)
CONTINUOUSLY, BUT FLUCTUATING	ADRENAL ---------->	OVARY THYROID POSTERIOR PITUITARY
	PARATHYROID <---------->	TESTIS THYMUS
	PANCREATIC ---------->	ANTERIOR PITUITARY INTERRENAL CORTEX (PINEAL)

Chart 4.—True hormones classified with reference to rhythmic production and to their relation to reproduction and sex.

INTERNAL SECRETIONS IN EVOLUTION

The facts and interrelationships just reviewed provide many data for a new standpoint from which to view the origin and meaning of the organs of internal secretion in the general scheme of animal evolution. Chart 4 will serve to focus these facts.

The list of internal secretions (those written in parentheses are possibly not true hormones) which workers rather generally concede to be related to reproduction or to sex is a long one. In another column, at the bottom and to the left, are listed those hormones for which previous investigators have not found any reason for classifying as reproductive hormones. I have, however, presented some evidence that these three hormones are concerned in reproduction in our animals. The changes in the blood calcium curve and in the blood sugar curve at ovulation will be recalled, as well as the fact that the islets of the pancreas at least cooperate in the sense that they fail to combat the sustained six day rise in blood sugar that occurs at ovulation. Nearly all the true hormones are thus found intimately concerned in the processes of reproduction or of sex; and probably the only true hormones not thus concerned, secretin and the doubtful gastrin, are engaged in the regulation of other irregular rhythms. Reproduction is itself a highly rhythmic process; and puberty and the menopause are epochs, even if nonrecurring epochs, not only in reproduction but in sexuality as well.

Only one true hormone, epinephrine, has thus far been observed in any part of the invertebrate world, and this in forms no lower than the leech and the crayfish. The true hormones appear to have originated in large and complex organisms to effect the coordination and regulation of essential and irregular rhythmic processes which the nervous system of these higher forms has proved itself incapable of regulating.[11] The chief of these rhythms are the species preserving rhythms of sex and reproduction. Thyroids, pituitaries, suprarenals and the rest wield their mighty normal influence on growth, variation and capacity, and in their dysfunction in man they challenge the medical knowledge of this age; but the key to their origin and primary meaning may rest mainly on their unshared power to regulate highly irregular rhythms, the chief of which are those involved in reproduction. If this conception is a true one, it should prove of some assistance in the further investigation of the interrelationships and precise functions of these organs.

CONCLUSION

Here I may gather up a thread of thought from which, during a description of special investigations, I have temporarily drifted. The disclosure of mechanisms and of new evidence of interrelationships is vital to progress; but indispensible also are new standpoints from which to look forward. Such a progressive and most hopeful point of view is evidently near at hand in a very real redefinition of what is involved in the word heredity. This redefinition seems to me so important to medicine, and to the control of all the life processes in man, that my last word here must be about it.

It is now becoming clear that the specific conditions under which a gene or genetic factor operates and develops have an equal value with the genetic factors in the determination of anything that can be called heredity. The factors distributed by germ cells set limits to the nature and appearance of adult characteristics; so do specific conditions. The matter of the control of any characteristic can be approached from either of these two sides. Many different studies during the last decades have helped to prepare the way for this new point of view. But the complete control and reversal of sex in several forms—with its implication of the theoretical possibility of its control everywhere—together with the probable identification of the particular and specific condition (metabolic rate) which here completely overrides the influence of the genetic factor—these events have adequately demonstrated the possibility of making either of many different types of individual out of identical germinal material. Heredity is controlled whenever and wherever development is controlled. Medical science will, for example, doubtless soon be provided with a relatively pure preparation of a hormone of the anterior pituitary with which the infant can be made sexually mature, as has been done already in the rat, mouse and bird. Of course, this agent will not be used precisely thus, but the advent of this specific agent sharply illustrates one type of specific condition with which one can overcome the might of heredity; and future research is sure to provide this and other types in such variety as will bring to medicine a new kind of beneficent power.

11. Riddle, Oscar: On Endocrines and Organisms, Am. Naturalist 61: 481 (Nov.-Dec.) 1927.

HYPERPARATHYROIDISM *

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In the literature on osteomalacia, on multiple cystic tumors of bone and on parathyroid tumors, there is a clinical picture, found occasionally under all of these titles, which seems to deserve description as a separate clinical entity. The study of the case reported here first called our attention to this disease.

A woman, aged 56, entered Barnes Hospital, Feb. 9, 1927, because of complete inability to walk, frequency of urination, and a swelling of the right forefinger. She had been strong and healthy during her childhood. She married at 22, but had never become pregnant. The patient lived with her husband on a small farm, where she worked hard. Some time in her girlhood she conceived a dislike for milk. She had other strong dislikes for food, which finally led her to adopt a diet that was extremely ill balanced. She was well, however, until the age of 38, at which time she began to have frequency of urination and was told by her physician that she had an "inflammation of the bladder." For ten days she was in bed because of this disorder. The symptoms gradually cleared up and the patient remained well for nine years, until the age of 47, when pain and frequency of urination returned. She had never since that time been entirely free from urinary symptoms. After six months' treatment her physician told her that she had fibroids and that an operation was necessary. A hysterectomy and a partial oophorectomy were performed. Following this operation she was never well. The urinary symptoms continued and she began to experience difficulty in walking, at first attributed to flatfoot, but later becoming so bad that she could get about only by supporting herself by the arms on both sides. She later noticed an increasing difficulty in lifting her feet from the floor. In February, 1926, from a rather trifling injury, she fractured the right clavicle, which healed slowly.

In September, 1926, she injured the right index finger when the leaves of a table closed on it. A roentgenogram was taken of this finger and a diagnosis of syphilis was made by the physician. This alarmed the patient so much that she entered the hospital.

The examination revealed a remarkable degree of muscular hypotonia, most marked in the lower extremities. This seemed to apply both to the joints and to the muscles. The patient was able to go to sleep with her head on her ankles or with both ankles tucked under her head. She had a marked kyphosis; she was unable to walk and could not support herself. Electrical tests of the muscles showed little response to the faradic current. There was a fusiform swelling on the first phalanx of the right forefinger, and a similar swelling on the right clavicle. A roentgenogram of the bones of the skull and other parts showed irregular areas of rarefaction. The urine showed signs of a moderate pyelitis. Flat plates of the kidneys revealed large collections of stones in the pelves. The right forefinger was removed. Examination by Dr. I. Y. Olch revealed a typical giant cell sarcoma. Biopsy of the clavicle showed normal callus formation.

After having been treated for the urinary symptoms for some weeks, the patient was sent home with the diagnosis of giant cell sarcoma, bilateral nephrolithiasis and an unexplained hypotonia of muscles and joints.

The patient returned in February, 1928. She had been in an automobile accident and had fractured the left humerus. She had had a tooth removed from the upper jaw, and a tumor had formed in the maxilla. A tumor had also appeared on the shaft of the left ulna. A biopsy of the ulnar swelling was suggestive of a benign giant cell sarcoma, exactly similar to that removed from the right forefinger. No biopsy was obtained on the tumor of the jaw. It had the appearance of a cystic expansion of the maxilla. The teeth were loosened. Rarefaction of the bones had greatly increased; a moderate bowing of the thighs seemed to be somewhat greater and a diagnosis of osteomalacia seemed justified. Examination of the blood showed a calcium content of 16 mg. and a phosphate content of 1.4 mg. per hundred cubic centimeters. Extensive metabolic studies showed a constant negative calcium balance, with a loss of calcium in the urine which was greater with any increase of calcium in the diet.

A survey of the literature revealed some remarkable and little emphasized associations:

1. Few cases of proved multiple giant cell tumors of bone have been reported in the literature. These have frequently been associated with so-called osteomalacia. Several of the cases were associated with parathyroid tumor or hyperplasia of the parathyroids. Moreover, many cases described as osteomalacia have been complicated by the appearance of bone cysts and bone swellings recognized by physical or roentgen examination but not examined pathologically.

2. It has been found by many observers that osteomalacia is associated with a negative calcium balance and increased excretion of calcium in the urine.

3. The occurrence of calcium stones and distressing urinary symptoms has been frequently reported in cases of osteomalacia.

4. There have been cases of osteomalacia and other bone diseases in which parathyroid tumors or parathyroid hyperplasia was noted at the time of autopsy.

5. A few cases of osteomalacia have been associated with muscular hypotonia and a complete inability to walk.

6. A high calcium content has been found occasionally in cases which were called osteomalacia and which were associated with multiple cystic tumors of bone.

7. Recent work on parathyroid extract has demonstrated the physiologic changes that occur when there is an excess of the parathyroid secretion. These include (*a*) hypercalcemia; (*b*) increased urinary output of calcium and negative calcium balance; (*c*) depletion of calcium in bone, and (*d*) hypotonicity of muscle.

With these points in mind, it became an urgent necessity to find some parathyroid disturbance in our patient. We were further stimulated by recent reports in the German literature (Mandl,[1] Gold[2]) and by personal conversation with Aub,[3] who, with E. F. Du Bois, had studied a similar case two years before and had removed from the patient normal parathyroid glands with considerable clinical improvement. The right lobe of the thyroid was easily felt and was not nodular. The left lobe was palpated with difficulty. When the patient swallowed, however, it rose from beneath the clavicle and a globular mass about the size of a small walnut could be felt embedded in the substance. Operation was performed by Dr. I. Y. Olch and a parathyroid tumor was removed, together with a small portion of the left lobe of the thyroid. Microscopic sections of this tumor revealed the characteristic appearance of a parathyroid adenoma.

About two days after the operation, the patient developed a severe tetany which threatened her life and from which she was saved only by heroic doses of parathyroid extract-Collip, calcium chloride intravenously and calcium lactate by mouth. From this tetany she has at present only partially recovered. The blood calcium is lower than normal; she retains huge amounts of calcium; the tumor on the jaw has become smaller, and the teeth which were loosened over the area of this tumor

* Read before the Central Society for Clinical Research, Nov. 23, 1928.

* From the Department of Internal Medicine, Washington University School of Medicine, and the Barnes Hospital.

1. Mandl, F.: Arch. f. klin. Chir. **143**: 245, 1926.
2. Gold, Ernst: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **41**: 63, 1928.
3. Aub, J. C.: Personal communication to the authors.

are tightened until now there is no suggestion of any difficulty. Muscular strength may have increased, but this is not clearly demonstrable by electrical response.

The finding of the parathyroid tumor and the effects that followed its removal seemed to complete the chain of reasoning necessary to implicate the parathyroids in the causation of the symptoms. In the literature, instances of similar difficulties have been reported under a great variety of titles. With the assembling of all the evidence, it seems justifiable to introduce the name of hyperparathyroidism and to consider under this heading the various cases as constituting a clinical entity as definite and distinct as parathyroid tetany or exophthalmic goiter.

The clinical features probably are:

1. Rarefaction of bone.
2. The occurrence of multiple cystic bone tumors, several of which on pathologic examination have been found to be giant cell sarcomas.
3. Muscular weakness and hypotonia.
4. Abnormal excretion of calcium in the urine and the formation of calcium stones.
5. Abnormally high serum calcium.

All of these changes are secondary to, or associated with, a parathyroid hyperplasia or parathyroid tumor.

A more complete review of the subject with metabolic studies will be made in a separate report.

DIABETES IN TWINS *

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A diabetic boy, Earl I., a patient of Dr. E. P. Joslin, recently brought his twin brother for treatment of diabetes. Earl, being a well trained diabetic patient, had discovered sugar in his brother's urine and had placed him on a regimen somewhat similar to his own. In looking over our records I was able to find three other instances of diabetes in twins, making a total of four in approximately 6,000 cases of true diabetes. Dr. Russell Wilder of the Mayo Clinic and Dr. Julian M. Wolfsohn of San Francisco have generously given me the data of two other instances, and in the literature seven reports of diabetes in twins are available. Such a series compels consideration of genetic factors and the rôle of inheritance in human diabetes.

REPORT OF CASES

CASE 1.—Kückens [1] presented a family tree showing paralysis agitans and diabetes in three generations, including a case of diabetes in identical twin boys. Diabetes was diagnosed on Sept. 8, 1923, in one of the twins; it ran an acute course for twelve weeks and the child died in coma. At the beginning of November, two months after the onset of diabetes in the first child, the twin brother became ill with the same disease. This one had survived up to the time of the report in November, 1925.

CASE 2.—Von Michaelis [2] reported an instance of extremely similar male twins, who simultaneously developed diabetes at the age of 60, accompanied by paresthesia of the legs, great psychic excitement and perforating ulcers of the toes. They had followed very different occupations; one was married and one was single, and both were obese. They died within a few weeks of each other of uremia.

CASE 3.—Von Müller [3] reports another example of similar male twins who developed diabetes at an advanced age in life. They died within a few years of each other and of the same cardiac complication.

CASE 4.—Murray [4] discussed twins from an historical and biologic point of view, touching on their relationship to disease, and reporting one instance of diabetes in identical twin sisters, who developed diabetes within the same year. The disease ran a rapid course in each of the twins and they died in coma after an illness of nine months. No reference is made to the age of onset or to the presence of diabetes in any previous generation.

CASE 5.—Twinem [5] studied nine pairs of identical twins and among these was one diabetic pair. One of them later died in coma. Through the courtesy of Dr. Leonard Wendt and of Miss Colwell, the dietitian for the diabetic patients of the Grace Hospital, Detroit, I have been able to secure additional information regarding these twins. At the onset of diabetes, Mrs. R.'s age was 24, her height was 5 feet (152 cm.) and her weight 116 pounds (53 Kg.). She is now 34 years old and her weight is 100 pounds (45 Kg.). She has never taken insulin and is not on a weighed diet. She was married at 21 and has a healthy son, aged 12. The twin sister, Mrs. S., whose height also is 5 feet and weight 100 pounds, was found to have diabetes six months before her death in coma, in June, 1926, at the age of 31. She had been in coma three times before her death. For ten years prior to her marriage she was employed as a private secretary. There was no family history of diabetes, but no mention was made of the grandparents.

CASE 6.—Wilder [6] reports an instance of diabetes in identical female twins. Ethel C. was first seen at the Mayo Clinic, March 27, 1925. There was no family history of diabetes. The mother was obese. The record of the grandparents was not available. The twin of Ethel had died two months previously in diabetic coma after a short illness. In Ethel's case the first symptoms of the disease developed six weeks after the death of her twin sister, whose symptoms had developed suddenly a month before her death, making an interval of about ten weeks between the onset in each. Ethel's height on admission was 59 inches (150 cm.), her weight was 75 pounds (34 Kg.) and her age 11 years. In October, 1927, her height was 62 inches (157.5 cm.) and her weight 114 pounds (52 Kg.). The diet prescribed was carbohydrate, 28 Gm.; protein, 40 Gm.; fat, 190 Gm., and insulin, 15-0-10 units. The patient did well at the Mayo Clinic, being discharged on a diet with a dextrose equivalent of 100 Gm., with small doses of insulin. In February, 1928, after three years and nine months of satisfactory progress, she died suddenly at her home from diabetic acidosis. Dr. Wilder was informed by the mother that the physical and temperamental resemblance of the twins was so striking that no one outside the immediate family was able to tell them apart.

CASE 7.—Wolfsohn [7] had a case of diabetes in twins fourteen years ago. They developed diabetes within two months of each other at the age of 52. The weight of each at that time was 152 pounds (69 Kg.), and the height, 5 feet 3 inches (160 cm.).

Blood sugar tests were not made. Both died several years ago, and complete data are not available. There was no family history of diabetes. The disease was easily controlled by dietary measures.

CASE 8.—Strouse [8] in 1918 reported a case of diabetes in twins, a boy and a girl aged 11 years. The girl first complained of irritation of the genitalia and increased thirst; examination of the urine revealed sugar. Because the two children had always suffered simultaneously from the same diseases the mother had the urine of the boy examined and sugar was found in his specimen also. Only one blood sugar is reported, which was 0.09 per cent in each case. Both were heavy eaters of carbohydrate food and were inclined to adiposity. The weight and height of the children are not given. There was no family history of diabetes.

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* From the New England Deaconess Hospital.

1. Kückens, H.: Klin. Wchnschr. **4**: 2289-2291 (Nov. 26) 1925.
2. Von Michaelis: Die erbliche Beanlagung bei der menschlichen Tuberkulose nach eigenerr Beobachtungen, Arch. f. Rassen u. Gesell. Biol. **1**: 198, 1904.
3. Von Müller, quoted from Siemens: Die Zwillings Pathologie, 1904.
4. Murray, G. R.: Lancet **1**: 529-532 (March 14) 1925.
5. Twinem, F. P.: Identical Twins and Heredity, New York State J. Med. **27**: 1192 (Nov. 1) 1927.
6. Wilder, R. M.: Personal communication to the author.
7. Wolfsohn, J. M.: Personal communication to the author.
8. Strouse, Solomon: Juvenile Diabetes in Twins, M. Clin. North America **1**: 1241-1259 (March) 1918.

CASE 9.—This case, reported by Bunce and Dougherty,[9] appeared since this paper was prepared. Identical male twins developed diabetes in 1927 within four months of each other in their twenty-seventh year. They were of the same height, 5 feet 10 inches (178 cm.); the one weighed 97 pounds (44 Kg.) at the time of the first examination, having lost 25 pounds (11 Kg.); the other weighed 114 pounds (52 Kg.), having lost 21 pounds (9.5 Kg.). There was present the mirror effect of a congenital strabismus with ambylopia of the eyes. They responded to the same treatment and maintained a normal blood sugar on the same diet; viz., carbohydrate, 65 Gm.; protein, 85 Gm.; fat, 165 Gm., with 20 units of insulin daily. The blood sugars on admission were 500 and 550 mg. per hundred cubic centimeters. Both were of a highly nervous temperament and held similar tastes. They gave negative histories apart from an attack of influenza in 1918 and again in the case of one in 1922, and no family history of diabetes could be elicited.

CASE 10.—Mrs. E., a patient of Dr. Joslin, developed diabetes at the age of 67 in March, 1926, and is at present under treatment. Her twin sister died of diabetes at the age of 21, having contracted the disease at 19. They were identical twins, resembling each other so strikingly that even their most intimate acquaintances could not tell them apart; their eyes and hair were the same color, they were exactly the same height and weight, and their mental tastes were as similar as their physical appearance.

CASE 11.—Miss T., aged 23, a patient of Dr. Joslin, one of a pair of identical twins, seen, June 10, 1926, had just graduated from college as an honor student. She developed diabetes with an acute onset when 13 years of age in September, 1916. Her weight at the time of onset was 113 pounds (51 Kg.), without clothes, and at the time of her first visit here was 115½ pounds (52 Kg.) net. She was discharged on a diet of carbohydrate, 81 Gm.; protein, 55 Gm.; fat, 100 Gm., with an insulin dosage of 10 units before breakfast, 5 before lunch, and 10 before supper. She has not been seen since her discharge, but in a letter dated June 25, 1927, she said that she was taking 45 units of insulin daily with a diet of carbohydrate, 100 Gm.; protein, 60 Gm., and fat, 150 Gm. Her weight was 127 pounds (58 Kg.) dressed. She was forced to eat at a restaurant and could only approximate her diet. Her twin sister died of diabetes when 3 years old. This makes a time interval of ten years between the onset of the disease in the two sisters. Her paternal uncle also died of diabetes, the father and mother being well.

CASE 12.—Earl I. and Samuel I., twin brothers and patients of Dr. Joslin, at the present time, July, 1928, are 13 years and 8 months of age; their weights are 85½ and 84 pounds (39 and 38 Kg.), respectively, and their heights without shoes are 4 feet 8½ inches (143 cm.) and 4 feet 9½ inches (145 cm.), respectively.

They are not sufficiently alike in physical appearance to be designated identical twins, although their hair and eyes are the same color; their weight and height are practically the same, and both stammer a little. A family history of diabetes cannot be elicited, though nothing definite is known regarding the grandparents. The twin boys have two brothers and one sister who are well.

Earl developed diabetes in November, 1923, at the age of 10 years and 2 months. When he came to the clinic in August, 1925, he had 3 per cent of sugar in the urine and a blood sugar of 0.39 per cent. His weight at that time was 66¾ pounds (30 Kg.) net. Samuel developed diabetes in August, 1926, when 12 years and 11 months old and weighing 80 pounds (36 Kg.) net, and was brought to the clinic by his twin brother. There was 3.7 per cent of sugar in the urine and the blood sugar was 0.38 per cent. on admission. The diabetes seems milder in him than in his twin brother but perhaps we are treating him more intelligently, and furthermore his condition was diagnosed earlier. His diet consists of carbohydrate, 109 Gm.; protein, 61 Gm., and fat, 93 Gm., the total number of calories being 1,502, with 12 units of insulin before breakfast, 8 before dinner and 4 before supper.

9. Bunce, A. H., and Dougherty, M. S.: Diabetes Mellitus in Twins, J. A. M. A. **92**: 52 (Jan. 5) 1929.

CASE 13.—The most recent addition to this list is Miss D., a patient of Dr. Joslin, who came to the clinic, Oct. 7, 1928, at the age of 29. An identical twin sister had died of diabetes, Sept. 19, 1920, at 21 years of age, having contracted the disease at 17.

Miss D. developed diabetes rather suddenly. She first noticed an intense thirst, Sept. 3, 1928, followed one day later by nycturia. She did not consult her physician, however, until Oct. 6, when he found a marked glycosuria. The glycosuria was 6 per cent at her first visit and the blood sugar was 0.22 per cent several hours after entrance to the hospital, during which time she had one meal preceded by 5 units of insulin. She was discharged fourteen days later, sugar free on a diet of carbohydrate, 132 Gm.; protein, 64 Gm., and fat, 116 Gm., the total calories being 1,828, with 10 units of insulin twice daily, morning and evening. At the age of 17 years, when her sister developed diabetes, the sisters each weighed 90 pounds (41 Kg.) with clothes. This was Miss D.'s weight when she developed diabetes at 29, twelve years after the onset in her sister. Her height on admission in October, 1928, was 5 feet 1 inch (155 cm.) without shoes. Her weight was 80½ pounds (37 Kg.) without clothes. This increased to 87¼ pounds (40 Kg.) before her discharge two weeks later. There is no family history of diabetes as far back as the grandparents. The patient has five brothers and four sisters, all of whom are well.

TABLE 1.—*Diabetic Twins on Record*

	Sex*	Homologous	Fraternal	Family History of Diabetes†	Age at Onset, Years	Time Interval Between Onset in Each	By Whom Reported
1.	♂♂	Yes	....	Three generations	Not given	Two months	Kückens
2.	♂♂	Yes	....	Not mentioned	{60 {60	Simultaneous	Von Michaelis
3.	♂♂	Yes	....	Not mentioned	Advanced age		Von Müller
4.	♀♀	Yes	....	Not mentioned	Not given	Within 1 year	Murray
5.	♀♀	Yes	....	None	{24 {31	7 years	Twinem, Wendt
6.	♀♀	Yes	....	None	{11 {11	10 weeks	Wilder
7.	♀♀	?	?	None	{52 {52	8 weeks	Wolfsohn
8.	♀♂	....	Yes	None	{11 {11	Simultaneously	Strouse
9.	♂♂	Yes	....	None	{27 {27	12 weeks	Bunce and Dougherty
10.	♀♀	Yes	....	Paternal uncle	{ 3 {13	10 years	Author
11.	♀♀	Yes	....	None	{19 {67	48 years	Author
12.	♂♂	....	Yes	None	{10.2 {12.0	2¾ years	Author
13.	♀♀	Yes	....	None	{17 {29	12 years	Author

* In this column, ♂ stands for male; ♀, female.
† Meager information.

BIOLOGIC CHARACTERISTICS OF TWINS

From the biologic aspect there are two classes of twins: (1) homologous or identical twins which arise from a single ovum, and (2) dissimilar or fraternal twins which arise from two separate ova.

Homologous twins are always of the same sex, usually identical in appearance, so that even their most intimate acquaintances cannot tell them apart. Since they possess the same germinal composition, one might expect such twins to show characteristic likenesses in the matter of disease.

Fraternal twins, on the other hand, may be of the same or of the opposite sex and do not resemble each other more than any two children of separate births in the same family. However, early childhood contacts and environment naturally make twins, whether identical or dissimilar, susceptible to the same childhood diseases almost simultaneously. On the other hand, the

occurrence of diabetes or some other noninfectious disease in such twins is evidence strongly in favor of a germinal source.

FREQUENCY OF TWINS

The figures given in the annual report of the bureau of the census at Washington on birth, stillbirth and infant mortality statistics for the registration area of the United States are summarized in table 2.

TABLE 2.—*Frequency of Twin Births in Registration Area of United States*

	1923	1924	1925
Twins	21,454	22,763	21,526
Triplets	191	247	246
Quadruplets	3	4	5

In 1923 out of every 1,000 births 12 were twins
In 1924 out of every 1,000 births 11 were twins.
In 1925 one of every 1,000 births 11 were twins

PHYSIOLOGY OF TWINNING

Nothing definite is known of the causes of twinning in man. It is generally thought that identical twins result from the fertilization of a single ovum by two spermatozoa. Murray[4] cites the experiments of Newman on eggs and embryos of starfish on the Pacific Coast which led him to the conclusion that a retardation of the rate of development, such as occurs in parthenogenic eggs or in those which are too crowded, is a direct cause of twinning.

On the other hand, the theory that duplicate human twins arise by some sort of early fission process in the embryo, probably initiated in the ectoderm, is rendered probable by the facts observed in the earliest known human embryos. It seems certain that the amnion in the human embryo arises as a hollow in a ball of ectoderm, as in the armadillo. This type of amnion formation would furnish the requisite mechanism for the production of ectodermic outgrowths from which, as in *Armadillo dasypus*, the primorida of twins could take origin.[10] Thus, homologous twins could be produced from a single spermatozoon and a single ovum. For an explanation of such an extraordinary occurrence, some peculiarity of ovum or spermatozoon, possibly inherited, might be sought. The closeness of resemblance between twins was first seriously investigated by Dalton in order to test the hypothesis that the degree of resemblance between duplicate twins is an index of the strength of heredity as opposed to environment. In attempting a minute comparison between them, he found them so much alike that he had to resort to such details as the friction ridge patterns in the palms and soles. Wilder[11] has carried out an exhaustive study in this connection, concluding that those twins which are identical in palm and sole patterns are monozygotic and those which fall short are dizygotic. Newman, however, from his studies on the armadillo quadruplets questions the accuracy of this conclusion.

The only evidence of an "hereditary" tendency in twinning is statistical, no experimental proof being available. It is known that certain families are prone to twins, but whether that tendency is a factor resident in the father or in the mother is not clear. Newman thinks that monozygotic and dizygotic twinning are characters susceptible of being inherited as unit characters and of being made racial or specific by selective breeding. He says that in cattle and probably in man twinning seems to be recessive and single births dominant; hence a pure twinning strain could be produced, if at all, only by interbreeding homozygous recessive individuals. It appears probable that inheritance rather than chance is the chief factor in twinning. From this standpoint the frequency of the appearance of diabetes in twins, similar or dissimilar, possesses great interest. If diabetes is germinal in nature, one may reasonably expect an inborn liability to the disease in the case of twins, especially homologous twins, less intense in fraternal twins, and still less in other members of the family.

HEREDITY AND MENDELISM

To approach this problem, a review of present-day knowledge of the principles of heredity is needed. The mendelian law has done much to clarify the conception of heredity, and its essential principles are clearly set forth by Clara J. Lynch[12] as follows:

> This characteristic, i. e., a segregation of the hereditary units in the germ cells, can be clearly seen in the offspring from hybrids of known ancestry. Therefore, the breeding test to be applied consists of making up hybrids and then analyzing what has occurred by inbreeding or backcrossing. To investigate any particular character, an individual possessing it is crossed with one that does not have it, and whose ancestors were free from it. The offspring from such a cross are usually all alike in either having or not having the character. If it appears in the first filial (F_1) generation it is termed dominant (D); if not it is called recessive (R). The accompanying diagrams may serve to illustrate these facts (P_1 = first parent).

$$P_1 \quad \frac{D}{D} \times \frac{R}{R}$$

Germ cells $D.\ D.$ $\quad R.\ R.$

$$F_1 \quad \frac{D}{R} \qquad \frac{D}{R}$$

Germ cells $D.\ R.$ $\quad D.\ R.$

$$F_2 \quad \frac{D}{D} \ \frac{D}{R} \qquad \frac{R}{D} \ \frac{R}{R}$$

Diagram 1

Since the germ cell is duplex in nature the dominant and recessive parents are represented by the formulas $\frac{D}{R}$ and $\frac{R}{R}$ respectively. These individuals can produce egg or sperm of but one kind (either D or R). Fertilization of one by the other results in individuals $\frac{D}{R}$ which by definition look like the parent with the dominant character, although they carry the recessive germ also. This generation produces germ cells of two kinds, D and R, so that random fertilization gives four combinations, three of which are individuals showing the dominant character, and one is recessive. Of the dominant, however, two carry the recessive latent germ and are termed heterozygous.

If the F_1 generation, instead of being inbred, is backcrossed to either type of parent, a different ratio is obtained in the F_2.

$$F_1 \quad \frac{D}{R} \times \frac{D}{D} \quad \text{(Parent)}$$

Germ cells $D.\ R.$ $\quad D.\ D.$

$$\text{Backcross} \quad \frac{D}{D} \ \frac{D}{R} \qquad \frac{D}{R} \ \frac{D}{D}$$

Diagram 2

As illustrated, if the backcross is made to the parent with the dominant character, the resulting offspring are all of the dominant type, a higher percentage than in the second filial

10. Newman, H. H.: Heredity and Symmetry in Armadillo Quadruplets, Biol. Bull. **30**, numbers 2 and 3, 1916; Am. Naturalist **47**, 1913.

11. Wilder, H. H.: Physical Correspondence in Duplicate Twins, J. Hered. **10**: 1-9, 1919; Zur körperlichen Identität bei Zwillingen, Anat. Anz. **32**: 193-200, 1908.

12. Lynch, Clara J.: Tumor Susceptibility and Heredity, J. Exper. Med. **39**: 481 (March) 1924.

generation from the first cross and equal to that of the first filial generation. If the backcross is made to the recessive parent, half of the progeny will be dominant (heterozygous) and half recessive, giving a smaller percentage of dominants than when F_1 is inbred.

HEREDITY AND DIABETES

The relation of heredity to disease in man is not at present well understood, partly because it is not susceptible to experimental approach. One cannot control matings in the human species. All evidence indicates, however, that the laws of heredity are the same for human beings as for other living creatures. "There are only two diseases, genetically speaking, viz., color blindness and hemophilia," says Stockard,[13] "that are inherited and possess clear-cut mendelian characters." And, again, "It is entirely probable that there are many inheritable diseases in which there is transmission of the germ plasm from one generation to another, but this remains to be genetically proved."

Barker[14] says:

> One must distinguish between inheritance of disease and the inheritance of tendency. The germ plasm represents a disposition to disease. The actual disease is the result of a reaction between what was in the germ plasm and its environment; hereditary disease is probably dependent to an extent for its manifestations upon the environment of the developing organism.

Cammidge[15] carried out some breeding experiments with mice over a period of several years, mating mice with high fasting blood sugars, also those having high fasting blood sugars with those having normal blood sugars, and finally mating the progeny of these crossings with each other. The results were in agreement with the mendelian expectation. Subsequently he proved also for other animals that a natural high fasting blood sugar is recessive to a normal blood sugar in the same way as albinism is recessive to color. These results are of interest, he says, as demonstrating how such an abnormality can lie dormant in apparently normal animals, maybe for many generations, to appear again in their descendants under appropriate conditions of mating.

It is interesting to speculate how a similar defect in carbohydrate metabolism may be transmitted in the same way in human beings. The author relates a number of case histories of patients which showed a close correspondence when the pedigrees of these people were compared with the animal results, the figures in many instances conforming to mendelian expectation. In some of these cases the disease would appear to be transmitted as a dominant character. He inclines to the possibility that defects in carbohydrate metabolism giving rise to glycosuria may be transmitted either as a recessive character or as a dominant character, and that in his experience the former type occurs most commonly before the age of 40, is generally grave from the onset, and tends to be self-exterminative. The latter type, on the other hand, is more frequently encountered in elderly people, is almost invariably mild, and does not seem to affect materially the general health.

Apropos of the mendelian expectation in diabetes, C. H. Danforth,[16] in discussing the theoretical distribution of hereditary traits in man, comments as follows:

> It is stated in medical texts that diabetes mellitus occurs in about 0.2 to 0.3 per cent of individuals and that heredity is indicated in from 20 to 30 per cent of diabetic cases. In view of this incidence of the disease and the limited extent to which family histories are usually followed up clinically this is about what would be expected if all cases of diabetes were in fact hereditary: assuming, of course, a population in which marriage selection is not greatly restricted by artificial barriers.
>
> If all cases of diabetes were due to the action of a recessive germ and if the incidence of the disease corresponded to 0.25 per cent of the population, then, according to mendelian expectations, approximately 72 per cent of cases (varying somewhat with the average number of children to the family) should show a negative family history to the extent that these patients would have nondiabetic brothers and sisters, parents, uncles, aunts and grandparents.

Danforth's theory is that diabetes seems to be an hereditary "recessive" trait. On the assumption, then, that both parents are diabetic and have four children and that diabetes mellitus is recessive, one child will have diabetes and three will be well but will carry a recessive germ, i. e., will transmit diabetes to a certain proportion of their descendants. As a matter of fact, the mendelian probability is much more complex than this because the status of grandparents and great-grandparents should be considered; further, while one parent may be nondiabetic, he often probably has diabetic antecedents that are not discovered, perhaps not even specially inquired for, his normality being assumed to exclude diabetic heredity on his side of the family, whereas he may be a bearer of an hereditary trait recessive in his generation.

When one considers the noninfectious nature of diabetes, the occurrence of the disease in twins, identical and fraternal, in some cases almost simultaneously, points to an hereditary background or to some congenital liability to functional failure of the islets of Langerhans. When homologous twins in a family develop diabetes the rest of the family is less liable to the disease, but in the case of fraternal or dissimilar twins one should consider the possibility of an inherent susceptibility, especially if the family is inclined to obesity. Consequently the appearance of diabetes of very recent onset in an homologous twin now under my care leads me to consider the other twin as potentially diabetic and to protect him from any undue strain on the carbohydrate metabolism. These prophylactic measures will include regulation of diet both quantitatively and qualitatively, particularly as to carbohydrate, and especially during the adolescent period and during the course of infections. In the case of women at the menopause, and in fact in both men and women between the ages of 45 and 55 years, one guards against undue gain in weight.

SUMMARY

1. Only seven instances of diabetes in twins are on record. To these I have added six, two through the courtesy of Drs. R. M. Wilder and Julian M. Wolfsohn, and four from my association with Dr. E. P. Joslin, making a total of thirteen.

2. The existence of diabetes in twins in some cases almost simultaneously points to an hereditary background and offers a good field for the investigation of diabetes as a problem in heredity.

3. When diabetes develops in a twin one should consider the other potentially diabetic, particularly if the two are homologous, and any undue strain on the carbohydrate metabolism should be guarded against.

13. Stockard, quoted by Riggs, C. E.: The Dynamics of Personality, Minnesota Med. 9: 291 (June) 1926.
14. Barker, quoted by Riggs (footnote 11).
15. Cammidge, P. J.: Diabetes Mellitus and Heredity, Brit. M. J. 2: 738 (Oct. 27) 1928.
16. Danforth, C. H.: Theoretical Distribution of Hereditary Traits in Man, J. Phys. Anthrop. 7: 294, 1924.

4. The recognition of eight twins (four sets) with diabetes in a series of about 6,000 diabetic patients, when compared with the estimated number of twins in such a group (table 1), suggests a larger proportion of diabetes in twins (1 to 9) than is the case in single individuals. It is to be hoped that others who have had similar cases will report them, in order to confirm or disprove these meager data.

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TREATMENT OF TROPHIC ULCERS BY ALCOHOLIC INJECTION OF THE BLOOD VESSELS

PRELIMINARY REPORT *

C. F. McCLINTIC, M.D.

DETROIT

The first step made toward the surgery of the sympathetic nervous system was by Claude Bernard in 1851, when he observed that section of the cervical sympathetic caused vasodilatation of the vessels of the ear of a rabbit, and that stimulation of the distal cut ends of the nerves caused blanching. Thus were discovered the vasomotor nerves.

Though the present development of the surgery of the sympathetic is due largely to the work of French surgeons, it is recorded that John Hunter did a decortication of a dog's carotid in an effort to produce an aneurysm. That is the first recorded periarterial sympathectomy.

Lord Lister in 1858 performed an experiment which proved that the nerves to the blood vessels of the lower limbs run in or on the vessel when he severed all the soft parts in the leg of a dog and observed that there was no paralysis of the blood vessel walls; he concluded, therefore, that the nerves run on the artery or, less likely, on the bone. For seventy years this observation went unnoticed. Three years ago the fact was rediscovered by Leriche, and it now forms the basis for surgical treatment of vascular conditions by an attack on the perivascular nerve network.

In 1906 Jaboulay endeavored to produce vasodilatation of the foot in perforating ulcer by denuding the femoral artery and tearing away the nerve twigs observed coming into the artery. Leriche, in order to interrupt the sympathetic fibers more completely, did a decortication such as Hunter had done.

Leriche thus describes his operation:

> The technic is to isolate the artery for a distance of 8 to 10 cm., fix the vascular sheath after dividing, to hold one part with forceps, and dissect off the cellular tissue either with knife or cannula round until there has been effected complete denudation of the vessel, which becomes greatly reduced in size. This brings no injury to the arterial wall. I verified this fact twice at four and eight months' intervals.

Leriche has had successful results from sympathectomy in the following conditions: (1) causalgia after war wounds; (2) certain painful crises preceding gangrene caused by obliterative endarteritis; (3) painful acroparesthesic syndromes consecutive to a bruise of the finger or to wounds to the hand, palm or sole; (4) in Raynaud's disease; (5) sometimes in cases of painful stump; (6) in muscular spasm secondary to war wounds; (7) in trophedema, and (8) in trophic ulcers, in which, however, the result may be temporary.

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EFFECTS OF LERICHE'S OPERATION

Leriche finds that as soon as the adventitia is pinched a contraction of the vessel occurs, its pulsation stops and its size diminishes. This fact is to be borne in mind when the method I have devised, to be described farther on, is discussed. If the cellular layer (presumably the tunica adventitia) is actually excised, the artery shrinks still more to only one-third or one-fourth its normal size. The contraction affects only that portion of the artery which is injured by the operation. It usually causes the pulse to disappear but does not altogether interrupt the circulation. For some hours pulsation is imperceptible or feeble and the limb is colder than its fellow by 3 or 4 degrees centigrade—a very serious consideration in cases of actual or threatened gangrene. After from three to fifteen hours entirely different symptoms supervene; namely, (1) an elevation of local temperature, amounting to 2 or 3 degrees in the affected limb, accompanied by a subjective sensation of heat; (2) an elevation of arterial pressure up to 4 mm. of mercury in the affected limb as compared with the opposite limb, and (3) an increased amplitude of the pulse, as shown by sphygmographic tracings.

It is important to notice that after periarterial sympathectomy the vasodilator reaction is transitory. It diminishes about the fifth or sixth day and disappears in three or four weeks. This is no doubt due, as Hunter found in his experiment, to connective tissue formation about the scar on the artery together with cicatricial contraction.

Leriche does not recommend the operation for actual senile gangrene and Matthey-Cornat gives as definite contraindications to it (*a*) circulatory insufficiencies of generalized senile arteriosclerosis with or without gangrene, and (*b*) arterial thrombosis and obliterations. With my method this limitation is not necessary. One of the reasons for his statement is the danger of the ischemic period in gangrenous or pregangrenous conditions, and the grave risks encountered in attempting to decorticate an atheromatous artery. He had six deaths and forty accidents in 500 cases.

In my experience and that of several other neurosurgeons, the same results have been obtained by ganglionectomy, by ramisectomy, or by the combination of a ganglionectomy and ramisectomy. Adson of the Mayo Clinic often combines these with a decortication. Although I have had very gratifying success with ganglionectomy alone or in combination with a ramisectomy, and although in no case have I included periarterial sympathectomy with these measures, I have discarded ganglionectomy in the neck in favor of a ramisectomy. In my work the same results have been obtained in the upper extremity by cutting the rami to the brachial plexus as have been secured by removing the stellate ganglion along with the cervical sympathetic ganglions and chain.

In the lower extremity a combined lumbar ganglionectomy and ramisectomy have been used for vasomotor disturbances and spasticities but at present I cannot say that the results have been as gratifying as in the method I have chosen; namely, alcoholic injection of the periarterial sheath.

The conditions in which I have used the alcoholic injections are: (1) generalized senile arteriosclerosis; (2) varicose ulcers; (3) chronic indolent ulcers of unknown etiologic origin; (4) endarteritis obliterans,

and (5) Raynaud's disease. The procedure is indicated also in (*a*) chronic arthritis deformans; (*b*) painful acroparesthesia; (*c*) as a preliminary procedure to the amputation of an extremity for gangrene, in that the amputation can be done more safely at a lower level; (*d*) roentgen burns; (*e*) gangrene from frostbite, and (*f*) certain types of hypertension.

TECHNIC

The femoral artery is exposed in the lower two thirds of Scarpa's triangle, freed, and supported by the assistant on his index and second fingers. With a very fine needle from 1 to 2 cc. of 95 per cent alcohol is injected into the nerve bearing tissue of the artery until an alcoholized ring or collar completely encircles the artery. In order to reach the back of the artery a torsion is done with forceps. Care should be taken not to enter the wall of the artery. When completed the artery appears as if it had been seared by a hot iron, the loose tissue being of a brownish color and the arterial wall yellowish white.

In the only other technic that I have seen described, not more than 2 to 3 minims of alcohol was used. The description of the method referred to was subsequent to a description of my method, which was first presented in a paper read before the Upper Peninsular Medical Society of Michigan, Aug. 3, 1928. I believe that the reason for the effects produced by the method referred to not being more permanent was the small amount of alcohol used in the injections.

The effect of alcoholic injection is immediate. It is not preceded by a period of vasoconstriction as is the case in periarteriorraphy. There is an immediate change in pulse volume below the site of injection. The extremity operated on immediately becomes flushed and warm. In one case a cyanotic leg and foot improved before the patient left the operating table. The effects are more permanent than in a periarteriorraphy, as the results from the latter disappear in a couple of months or less. The risk of injuring a blood vessel is practically nil in making the injection. The shock of the operation is of little consequence and the time necessary for the completion of the operation is only a few minutes. The end-results in the few cases in which I have used the operation have been lasting and gratifying.

REPORT OF CASES

Four of the cases in which this operation was done more than six months ago presented four typical conditions: (1) indolent ulcer; (2) ulcer from senile arteriosclerosis; (3) varicose ulcer, and (4) chronic traumatic ulcer. In all of the cases there were negative Wassermann reactions; there was no sugar in the urine, and the blood sugar was normal. The following are brief summaries of these cases:

1. *Indolent ulcer.* A well developed negro, aged 36, in good health except for six large ulcers on the lower third of the left leg, which were of nine years' duration, had been treated over long periods of time by several physicians, including surgeons on our own staff, and had been recently treated in our hospital for three months without results. At operation the ulcerations were crater-like, with the bases situated beneath the deep layer of the skin, and the edges were clear cut. There were no signs of granulation or healing.

A periarterial injection of 95 per cent alcohol was done, under spinal anesthesia. The patient left the operating room with the left leg distinctly warmer than the right. The resident was instructed to study the ulcer changes and prepare the patient for the grafting of skin on the ulcers eight days later. At the end of that time healing had progressed to such an extent that the patient declined further treatment. Two weeks later he secured a job in a garage, and on December 1, when he was last seen, the ulcers had healed and were evidenced only by light colored scars.

2. *Ulcer due to senile arteriosclerosis.* C., a man, aged 72, had a perforating ulcer beneath the big toe of the right foot, another on the upper surface of the instep, and a third on the lower end of the leg just above the external malleolus. The foot and leg were cold, clammy, moist and swollen, and the skin was greatly thickened and bronzed in appearance. The condition was growing worse under the routine treatment for ulcers of this type.

Under spinal anesthesia the femoral artery was exposed. The artery was markedly sclerotic and rigid. It was with trepidation that we attempted to elevate it because of its rigidity. The injection was done and the assistant remarked that he could note a change in pulsation below the site of injection immediately as he supported the vessel on his index and second fingers. When the extremity was examined by the assistants and nurses, a distinct increase in warmth was noted before the patient left the operating table, and the color had changed from that observed in cyanosis to a fleshy pink.

Within two weeks all the ulcers had healed, the edema disappeared and, when the patient was last seen in November, the thickened skin of the leg and foot had exfoliated and was soft in texture and bright pink, suggesting the color of the sole of the foot of a new-born babe.

3. *Traumatic ulcer of sixty years' duration.* W., a white man, aged 75, was perfectly healthy except for three chronic ulcers on the right tibia on the anterior and lateral surfaces of the leg extending from the lower portion of the upper third well onto the lower third of the leg. When 15 years of age the patient, who was a jockey, received an injury to the leg over the middle of the right tibia anteriorly. Ulcers developed and for sixty years he had been seeking a cure. One member of our staff had treated him continuously in the hospital for eighteen months. He was then treated by alcoholic injection as were the other patients and with the same results. The ulcer healed within two weeks and so remains. The right leg is distinctly more vascular in appearance than the left and warmer.

4. *Varicose ulcer.* B., a man, had a well developed case of varicose veins of the right leg. These had been treated surgically with fair results; only a few segments of dilated veins remained, but three chronic ulcers persisted on the anterolateral surface of the leg. They were of fourteen years' duration. He was treated as were the other patients and with the same results.

COMMENT

While my cases number less than twenty, I feel that the results justify my recommending this procedure as worthy of trial in well selected cases.

I shall certainly never do a periarterial sympathectomy again. For certain nonvascular conditions in which the lower extremity is affected I recommend a lumbar ganglionectomy and ramisectomy; for the upper extremity, a ramisectomy. But for the vascular conditions of which the cases cited are typical, I should certainly urge a periarterial injection of alcohol. This operation is also recommended for pregangrenous conditions, and for cases of chronic arthritis deformans of the extremities.

I have recently done the operation for gangrene from frost bite and the indications are that the same results will be obtained. I have also used it for arthritis deformans and have obtained an increase in vascularity and a rise in the temperature of the leg. One patient, a nurse, complained two days after the operation that the leg that had been operated on was feverish because on feeling the thighs she observed that it was very much warmer than the leg that had not been operated on. I hope to be able to report several of the cases of arthritis at a later date.

CONCLUSIONS

The operation here described is recommended because:

1. The effect is immediate.
2. There is no period of vasoconstriction as in a periarteriorraphy.
3. The operation requires only a few minutes.
4. The technic is simple.
5. The operative shock is of little consequence.
6. The results are more permanent than those of periarterial sympathectomy.
7. The dangers of an accident to the blood vessels are eliminated.

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IS THE TREATMENT OF SPEECH DISORDERS A MEDICAL PROBLEM?

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The present treatment of speech disorders is for the most part conducted by pedagogues. The public schools of the large cities have departments of speech improvement under lay supervision and the actual treatment is done by school teachers, who perhaps have taken one or more postgraduate courses in colleges where they were taught by the professors of elocution or public speaking. Nowhere has it been impressed on them that they were dealing with a pathologic process. The fault also lies with the medical profession, for I know of no medical school where the subject of speech defects is considered part of the curriculum. When it is realized how closely the speech process is associated with psychiatry, neurology, mental hygiene, rhinology, laryngology, otology and applied psychology, it will be readily appreciated that good results can be obtained only if the treatment is considered a medical problem. Teachers are absolutely necessary for the phonetic side, but they should work under the supervision of a medical director.

THE CLASSIFICATION OF SPEECH DISORDERS

Speech disorders may be classified under two general headings, (1) stuttering and stammering, which I consider synonymous, and (2) defective phonation. Though there is a variation of opinion as to the differentiation between stuttering and stammering, I feel that since the etiology, pathology and treatment are the same in the two cases, for practical purposes the two conditions are one and the same. Under the classification of defective phonation are included aphasia, lisping, persistent infantile talk, nasality, hoarseness, falsetto voice, imperfect pronunciation, phonasthenia, lalling, undeveloped or retarded speech, perverted speech and foreign accent.

STUTTERING AND STAMMERING

Stuttering or stammering is a spastic coordination neurosis based on a mental conflict. Consequently to treat it otherwise than medically is an absurdity. All the phonetic reeducation in the world will not cure a case. The treatment of stuttering must be under the supervision not only of a physician but of a physician versed in neuropsychiatry, otorhinolaryngology and internal medicine. This will be evident when the etiology is studied.

ETIOLOGY OF STUTTERING

Makuen [1] believes that heredity is the most important cause. Gutzmann [2] considers temperament the chief factor. Blume [3] holds that the most immediate cause is a brain that is working too fast for the undeveloped articulatory organs to express the thoughts conceived. Schmalz [4] attributes stuttering to cramps of the vocal cords. Merkl [5] believes the condition to be of psychic origin. Rosenthal,[6] Benedict [7] and others consider it a spastic coordination neurosis. The psychoanalysts Freud [8] and Stekel [9] think of stuttering as the outward expression of an internal conflict. Browning [10] has described an association between speech defects and the internal secretions. If one were to base his opinion on the observations of these workers only, he would be justified in asserting that the field of stuttering and stammering is within the province of medicine and surely never of pedagogy.

I myself consider the etiology of stuttering under three captions: (1) predisposing causes, (2) exciting causes and (3) aggravating causes. The predisposing causes are heredity and neuropathic constitution. Great care must be taken, however, to distinguish between what is imitation from contact and what is due to a neuropathic taint. But it is undoubtedly true that stuttering is found in succeeding generations in families in which imitation is an improbable cause. The exciting causes are nervous shock and psychic insult. The mental trauma may be due to a fall, an operation, a scare, change of environment, nervous exhaustion following the exanthematous diseases or severe acute infections, anxiety, fear or the psychoneuroses. Finally, though stuttering is primarily a mental condition, there are physical factors that may be associated with it and act as aggravators. For the most part these are in the form of pathologic conditions in the mouth associated with tooth development, or in the ear, nose and throat.

TREATMENT OF STUTTERING

If stuttering has so many definite pathologic causes, one wonders how phonetic instruction by school teachers can be anything but futile, and such is the present case. Children attend the speech classes in the public schools in a perfunctory manner and with little if any benefit. It may be stated almost dogmatically that phonetic reeducation alone is of more harm than good to the stutterer.

The treatment of stuttering is medical, surgical, psychotherapeutic and finally reeducational. Emotional instability, tics, choreas, anemia, malnutrition and endocrine disturbances require the requisite medical attention. Although, as already stated, stuttering is a mental disease, there are physical factors that may aggravate the situation and these require surgical attention at the hands of the rhinolaryngologist, oral surgeon or orthodontist.

Stuttering has been defined as a spastic coordination neurosis based on a mental conflict. To determine the nature of this mental conflict, which has long since been forgotten and lies buried in the subconscious mind, hypnosis or psychoanalysis may be employed. Sugges-

1. Makuen, Hudson: A Study of One Thousand Cases of Stammering, Therap. Gaz., June 15, 1914.
2. Gutzmann, H.: Sprachheilkunde, Berlin, 1912, p. 373.
3. Blume, C. S.: Stammering and Cognate Defects of Speech, New York, 1913.
4. Schmalz: Ueber Stammeln und Stottern.
5. Merkl: Anthropophnick, Leipzig, 1863.
6. Rosenthal: Kenntnis und Heilung des Stoteeruebels, 1864.
7. Benedict: Nervenpathologie, Berlin, 1873.
8. Freud, Sigmund: Zur Psychologie des Alltagslebels, 1904.
9. Stekel: Nervoese Augstzust, 1904.
10. Browning, W.: Etiology of Stammering and Methods of Treatment, New York State J. Med., March, 1911.

tion is also useful in creating a spirit of self-confidence, something the stutterer usually lacks. By positive suggestion the stutterer is convinced that he can speak, that he is cured and that he is well. Here a knowledge of mental hygiene is useful. Another form of psychotherapy that can be used to advantage is distraction. The attention of the stutterer is focused on his speech. This attention can be distracted by various means, such as the metronome, the megaphone, singing or chanting, elongation of vowels, pacing, writing, change of voice and breath grouping.

The reeducational treatment, which is of importance, is best conducted by a specially trained teacher under the guidance of a medical speech specialist. I classify this course of treatment under four headings: (1) relaxation exercises, (2) breathing exercises, (3) vocal gymnastics and (4) phonetics.

When the stutterer begins to speak, he directs his attention to the process and he becomes tense. The muscles contract, he stands rigid, the abdominal wall hardens like a board, the jaw is held tight, the lips are firmly compressed, the fists are clenched, the cheek muscles are taut and there is a spasm of the laryngeal muscles. Against this barrier of spasticity he throws a flow of speech which comes out in a torrent of explosive utterances. The failure aggravates the situation and he may become speechless.

The first task is to break down the wall of spasticity and liberate the imprisoned voice. The muscles of the face, mouth, neck, larynx and abdomen, in short, of the whole body, for one speaks with the entire body, should be relaxed. To attempt such reeducation in classes in which children are told to sit at attention with their hands behind their backs or clenched tightly in a stiff position on the desk or lap is to increase the spasticity and produce more disaster.

The first requisite for relaxation is a sympathetic relation between the stutterer and his teacher or physician. If the stutterer is afraid or in awe, as he is apt to be in a school room, the nervous tension is increased and cure becomes impossible. The stutterer must be made to feel thoroughly at home and surely no child feels at home in school. Consequently this class of speech defectives needs private attention or at the most training in small groups.

Stutterers may or may not breathe properly and defective breathing engenders stuttering, but the fact remains that stuttering nearly always causes wrong habits of breathing during speech. For some unknown reason it is the popular notion in schools that inhalation is to be accompanied by a forced raising of the shoulders. This prevalent notion can only be explained on a lack of knowledge of the physiology of breathing. All textbooks on physiology describe the normal type of breathing as that using the diaphragm and the side ribs, not the shoulders and clavicles. Apparently, school teachers do not know this and here again require the guidance of the medical man trained in physiology and anatomy.

Though stuttering is a neurosis and is not caused by improperly functioning articulators, it is often associated with a physiologic disorder of these organs. The lips are spastic, the tongue is rigid, the soft palate is stiff and the muscles of the mouth and throat are taut. Consequently, not infrequently a secondary improper articulation is developed in addition to the inability to speak. This condition the trained teacher can overcome by the use of vocal gymnastics. Finally, the teacher may correct bad speech habits by phonetic instruction.

ETIOLOGY OF DEFECTIVE PHONATION

With the exception of foreign accent and perhaps at times imperfect pronunciation, particularly when due to negligent speech, the other types of defective phonation are medical problems. This is practically self-evident when the causes are studied. The etiology of defective phonation may be considered under two captions, central and peripheral. The central causes are mental deficiency, hydrocephalus, amaurotic family idiocy, hereditary ataxia, cerebral hemorrhage, spastic spinal disease, bulbar paralyses, multiple sclerosis, paresis, Bell's palsy, brain injuries, brain tumors, epilepsy, chorea, tics, hysteria, insanity and eunuchoidism. The peripheral causes are tumors of the tongue, macroglossia, adenoids, abnormal length and thickness of the uvula, burn scars holding down the lip, cleft palate, harelip, deformities of the jaws, improper development of the palatal arch, imperfect dental arches, nasal polypi, hypertrophied turbinates, marked deviation of the septum of the nose, tongue tie, defective hearing, sinus disease, laryngitis, improper voice production or abuse of the voice, stenosis of the larynx, pressure on the trachea and the recurrent laryngeal nerve or vagus, postdiphtheritic paralysis, hemiatrophy of the tongue and perichondritis. With such a multitude of physical pathologic causes, what can be accomplished by phonetic instruction by the school teacher unless it is supplemented by medical and surgical measures?

Aphasia and Defective Phonation.—Experience has taught me that any person using baby talk after 5 to 7 years of age should be suspected of mental deficiency.

A girl, aged 16, referred to me by her school teacher with a diagnosis of persistent infantile speech or baby talk, was in the second year of high school and consequently not mentally defective. A thorough physical examination elicited an inability to whistle and a tendency to pull the lip over to the left side. A careful history brought out the fact that at about 4 years of age the girl had had fever and a few convulsions. This led me to make a diagnosis of cerebral hemorrhage affecting Broca's area. Her defective phonation was due to aphasia and not baby talk. How could her school teacher know this?

Adenoids and Defective Phonation.—Gutzmann [11] found adenoid vegetations in 30.9 per cent of 569 cases of defective phonation, which incidence he estimated to be three times greater than that among normal school children. Adenoids may cause speech defects directly by bringing about a relaxation of the soft palate and preventing its normal activity in talking or by interfering with the head resonance, making the voice muffled, nasal and indistinct. Indirectly or reflexly, adenoids affect the nervous system, aggravating nervous irritability as in asthma or in enuresis except that in this instance disturbances of speech are excited.

Marion P. was suffering from a marked speech defect characterized by nasality, indistinctness and inability to be understood at times. Physical examination was negative with the exception of hypertrophied tonsils and adenoids, mouth breathing and a discharging ear of long duration. Mentally the child was retarded, being in a grade two years lower than that normal for her age. The tonsils and adenoids were removed and the voice became clearer but was still imperfect because of a relaxed palate. Vocal gymnastics and phonetic reeducation were given and gradually the nasality disappeared, the voice gained a normal clearness and the child made progress in school.

Abnormalities of the Uvula.—Abnormal length and thickness of the uvula, bifurcation and double uvula impair speech either by acting as a foreign body in the throat and obstructing free articulation or by pulling

11. Gutzmann, H.: Disturbances of Speech in Church, Archibald: Diseases of the Nervous System, p. 336.

on the soft palate and preventing its rising with the vowels. The speech is muffled and there is difficulty with all the vowels but especially o and u. The treatment consists in nipping the unnecessary portion. Then and then only is speech reeducation indicated.

Intranasal Obstructions.—Makuen [1] states that more than 37 per cent of his patients with defective phonation had intranasal pressure due to various irregularities of the nasal septum. Nasal obstructions interfere with the head resonance and change the quality of the sounds, making an m sound like b and an n like d. The most common intranasal obstructions causing these changes are hypertrophied turbinates, deviated septum and polypoid growths. No matter what phonetic education is adopted, this speech disorder will not be corrected unless the obstructing structures are removed.

Phoebe H., aged 18, was attending the Normal Training School for Teachers. Her work was good but she could not graduate because of her speech defect. Her speech was harsh, nasal and grating to a sensitive ear. She had trouble with n, m and ng. Before coming to me she had studied phonetics, elocution and public speaking with particular reference to her own disorder. Despite months of assiduous application, the voice retained its unpleasant character. Rhinoscopy showed a markedly hypertrophied middle turbinate and a septum with two deviations in it, one low down and to the right, and the other high up and to the left. The anterior tip of the middle turbinate was removed and a resection of the septum was done. As soon as the healing process was over, the nasality disappeared, the grating character was gone, and the sounds n, m and ng were rendered properly. I may add that the girl graduated and at present is teaching school.

Tongue Tie.—That tongue tie is a cause of defective speech is a time honored belief. Stuttering is often attributed to this cause but this is rarely the case except in those few instances, such as that described by Scripture,[12] "where tongue tie had made the person so nervous that he had become a stutterer." He reports a case in which the boy both lisped and stuttered, but when the frenum was cut he ceased immediately to lisp and stopped stuttering after three days. He concludes that tongue tie caused the lisp and the embarrassment over the lisp caused the stuttering.

Alfred, aged 5 years, was a lisper. The tongue was held down by the frenum. He could not project it beyond the teeth. Any tongue that cannot be extended beyond the teeth is not free enough for correct speech. The frenum was cut loose and the lisp immediately and completely disappeared.

Defective Hearing.—The ears should be examined in every case of defective phonation associated with any degree of diminished hearing, for the speech defect may be due to the inability of the child to hear the finer shadings of his own voice. The relation of the auditory sense to speech is well illustrated by the deaf, who possess a monotonous colorless speech. It is a well known fact that children who cannot hear will not of their own accord learn to speak. The deafness may be due to a congenital defect in the structure of the ear or to adenoids, hypertrophied tonsils, abscesses and obstructions in the air passages. Removal of the obstruction will often improve the hearing and through it the speech.

Cleft Palate and Harelip.—When the palate is open, the rear passage of the air through the nose cannot be shut off and all the sounds except m, n and ng are changed in quality and character. The vowels assume a nasal twang, and a snorting speech is the result. Harelip is closely associated with cleft palate and is often found together with it. Surgical intervention is indicated whenever possible. This is to be followed by speech reeducation.

Joseph, aged 11 years, had a muffled, indistinct, slurring speech. To hear him talk gave one the impression that he was suffering from a cold. Physical examination revealed a cleft palate and a unilateral harelip. The boy was operated on with an excellent result, but for a long time he complained of "feeling a strange thing in the mouth." Most of the nasality disappeared after the operation, but trouble with the sounds d, t, s and z persisted until reeducation exercises were adopted.

Deformities of the Jaws and Dental Arches.—Prognathism of the jaw is a very common cause of lisping. The correct form of the dental arches and the proper occlusion of the teeth are necessary for the pronunciation of certain sounds, particularly s, which becomes sh when the upper teeth protrude too far beyond the lower ones. When, because of marked prognathism, the lips do not meet in juxtaposition there is difficulty with the letters f, v, p, b and m.

Another not infrequent cause of incorrect and indistinct pronunciation is rigidity of the jaw. The voice does not carry, speech is unintelligible, and there is mouthing of the sounds. The modus operandi of this is appreciated when it is realized that to the lower jaw are attached the muscles of the tongue and the hyoid bone. The larynx is connected with the hyoid bone; thus rigidity of the jaw influences the mouth and larynx.

The treatment in these cases is primarily within the scope of the dental surgeon and orthodontist. Prophylaxis and dental hygiene can do much to preserve the normal state of the teeth and thus prevent the unnecessary development of these particular speech disorders.

Hoarseness and Defective Phonation.—To attempt to correct a hoarse form of speech without a thorough laryngologic examination is of course a stupid procedure. To emphasize this, only a few of the causes of chronic hoarseness need be mentioned. These are laryngitis sicca, perichondritis, sinus disease, neoplasms, pressure on the trachea, recurrent laryngeal nerve or vagus, foreign body in the larynx, stenosis of the larynx, laryngismus stridulus, bulbar paralysis, brain tumor, tuberculosis and syphilis of the larynx.

The Falsetto Voice.—Teachers will try to correct a falsetto voice without any regard to an underlying cause. When the importance of endocrine disturbances in causing such a voice is realized, the futility of such an endeavor becomes obvious. Any man presenting a falsetto voice, that is, a high pitched female voice, is entitled to a careful endocrinologic study, for such a form of speech may be a secondary female characteristic and indicative of eunuchoidism.

Retarded Speech.—There are two main causes of retarded speech, mental retardation and deafness. The mental retardation may be due to aphasia, encephalitis, hemorrhage, a severe infectious disease or primary amentia. It is not rare to find a child that will cease talking after a severe infection, as scarlet fever. This is due to a temporary mental depression. On the other hand, a child may make an usually rapid progress in speech after a severe illness, such as encephalitis. This is due to an increased cerebral irritability. Deafness may be congenital but I have seen cases in which a child could not hear because of impacted cerumen in the ears. When a history is obtained that the child spoke at one time and imitated sounds but gradually stopped talking, examination should be made to rule out enlarged adenoids, deformities of the hard palate, adhesions of the tongue to the anterior pillars or epiglottis, and partial paralysis of the tongue.

12. Scripture, E. W.: Stuttering and Lisping, 1923, p. 164.

Perverted Speech.—Practically every ament has a speech defect. This may vary from a total lack of speech to defective phonation. Lalling, drooling during speech, screaming, grunts and inarticulate sounds are found in the lower types. There are a few types of speech that are characteristic of the mental defective. These are coprolalia, idioglossia and echolalia. Coprolalia is filthy speech which consists in sudden explosive outbursts of vile and obscene language. This condition may also be found in the insane. Idioglossia is that form of speech in which there is so much substitution of sounds that the language becomes unintelligible but peculiar to the individual. Echolalia consists in repeating the questions asked instead of giving the replies.

Speech Conflict.—In the big cities of our country where there is a large foreign population there is a curious form of speech defect caused by the attempt to adhere to the mother tongue and at the same time to speak in English. Such persons think in one language and talk in another. This conflict between the old and the new forms of speech prevents free expression, engenders hesitation, causes the substitution of foreign words, perverts meanings, and produces general confusion and inability to be understood. As a consequence a secondary emotional disturbance may develop which may range from a simple embarrassment to a deep depression dependent on the temperament of the individual. Not infrequently, as a result of the instability, stuttering may set in.

Victoria S., aged 11, was backward in school because of her speech. The complaints were lack of comprehension, inability to concentrate, and unintelligible speech. The Terman test gave an intelligence quotient of 74 and a mental age of 9 years.

Victoria had come to this country from Italy at the age of 6 and was living in the Jewish quarter of the city. She learned Yiddish from her neighbors before she attended school. When she entered school she presented three conflicting language elements, the Italian spoken at home, the Yiddish spoken in the neighborhood, and the English to be acquired at school.

The consequence was that she thought in one language and, when trying to express herself in another, became flustered, confused and unintelligible. This caused an embarrassment, a disturbance of the affective mechanism, an impairment of the intelligence, and not only a definite speech defect but an emotional instability.

The diagnosis was mental retardation due to emotional instability, speech defect and poor environment. This case was a problem for the mental hygienist, not the school teacher. Under proper treatment, the girl made much headway. A complete cure of her defective speech could not be obtained because of the constant relapses into her old habits caused by her environment. If this child could be taken away from her home, away from where Italian and Yiddish were constantly spoken and heard, and be put in an English speaking atmosphere, I feel confident that she would be easily and perhaps spontaneously cured.

Lisping.—Lisping is a form of speech defect that rarely comes to the medical speech specialist because school teachers think themselves fully competent to handle the situation. The fallacy of this is demonstrable when the etiology is understood. There are two kinds of lisping: central or infantile, and lateral lisping. Central lisping occurs when the tongue protrudes between the teeth or is just behind the teeth in midair. When the former is the case, th is used for s, and when the latter is the case there is a soft s instead of a sibilant one. Lateral lisping occurs when the phonated breath escapes over one or both sides of the tongue.

Infantile lisping occurs during the period of the second dentition and is caused by the loss of the front teeth. Later central lisping may be due to harelip, lip paralyses, missing teeth, short frenum, microglossia, macroglossia, prognathism, arched narrow palate, cleft palate, improper dental arches, obstructions in the nose and throat, and weakness of the tongue muscles. Lateral lisping is caused by the malocclusion of the lateral teeth or paralysis of one side of the soft palate.

Realizing the importance of the oral cavity in the causation of lisping, I do not feel that it is too much to ask that every child presenting a lisp should have a thorough oral diagnosis by the oral surgeon or dentist before corrective exercises are undertaken.

Nasality.—Nasality may be a bad habit but it may be also due to a definite physical cause which needs the attention of the rhinolaryngologist. There are two kinds of nasality: hyponasality, when there is a lack of proper nasal resonance, and hypernasality, when there is an excess of nasal resonance.

Hyponasality is due to an obstruction to the nasal breath current which may be caused by sinusitis, hypertrophied tonsils, enlarged adenoids, deviated septum, enlarged turbinates, nasal polpyi and nasal catarrh.

Hypernasality is due to too much air escaping through the nasal passages, which may be caused by cleft palate, postoperative tonsil trauma, voice fatigue or phonasthenia,[13] relaxation of the palate in the aged, postadenoidal speech [14] and velar insufficiency.

With the etiology of nasality in mind, it becomes clear that the most intense phonetics will not be of any value if the cause is physical in origin and not due to negligence. Consequently every individual presenting a nasal speech, whether hyponasal or hypernasal in type, should receive an examination of the nose, throat and mouth not by the school teacher but by a trained medical speech specialist. I emphasize not by the teacher, for there are some textbooks on speech correction written for the laity which instruct the teacher in the use of the head mirror, nasal speculum, tongue depressor and even that delicate instrument the laryngoscope. Apparently the authors of these textbooks think that any one can manipulate a laryngoscope and know what he is looking at, irrespective of former training.

The Teeth and Defective Phonation.—The teeth, because of their firm attachment, have a passive rôle in articulation, but this rôle is very important. Though the teeth themselves do not make any active obstructive movements to the clear passage of the breath, their very presence is a hindrance to it.

Great protrusion of the upper teeth makes s sound like sh. Dental gaps affect the production of s. A bent inward canine tooth interferes with the t sound, giving it an s quality. Undershot jaws affect the sounds f, v, p, b, m, w, wh, oo, a and o. Overshot jaws affect all these sounds plus the sounds th, soft and hard, s, sh, t, ch, z, zh, d and j. An open bite affects all the sounds with the exception of the open vowels, the nasal ng and the aspirate h. Obtruded front teeth interfere with the sounds f, th, soft and hard, s, sh, z, v, zh, wh, p, oo, o, w, b and a. Intruded front teeth interfere with the sounds th, soft and hard, s, t, z and d.

I believe that I have given sufficient instances of the importance of the teeth in their rôle of articulators to demonstrate the necessity of dental examination in cases of defective phonation. Most of the abnormalities can be easily cured by orthodontia.

13. Glassburg, J. A.: Throat Stiffness and the Voice, Laryngoscope **35**: 469 (June) 1925.
14. Glassburg, J. A.: Postadenoidal Speech, Arch. Otolaryng. **4**: 296-297 (Oct.) 1926.

CONCLUSIONS

The treatment of speech disorders is a medical problem which requires the cooperation of the pedagogue, the psychiatrist and the rhinolaryngologist. Teachers should work under the supervision of a medical director.

Speech disorders may be classified under two headings: stuttering and stammering, which are synonymous, and defective phonation.

Stuttering or stammering is a spastic coordination neurosis based on a mental conflict. The causes are predisposing, exciting and aggravating. The predisposing causes are heredity and a neuropathic constitution. The exciting causes are nervous shock and psychic insult. The aggravating causes are pathologic conditions in the mouth, ear, nose and throat. The treatment of stuttering is medical, surgical, psychotherapeutic and reeducational.

Aphasia, adenoids, abnormalities of the uvula, intranasal obstructions, tongue tie, cleft palate and harelip, and deformities of the jaws and dental arches are all causes of defective phonation which require the services of the oral surgeon, rhinolaryngologist, neurologist and dentist before the teacher attempts reeducational methods. In every case of defective phonation a thorough physical examination should be made before corrective measures are instituted.

Hoarseness, falsetto voice, retarded speech development, perverted speech, the speech conflict, lisping and nasality are forms of speech disorders based on physical or mental causes which require the attention of the medical specialist in order to overcome the disorder.

17 West Seventy-First Street.

PREDOMINATING ORGANISMS FOUND IN CULTURES FROM TONSILS AND ADENOIDS

OBSERVATIONS AFTER ONE HUNDRED OPERATIONS *

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During the six months from November, 1927, to May, 1928, cultures were made from the interior of the tonsils and adenoids removed at operation in 100 selected cases. Patients with a history of repeated attacks of tonsillitis were selected for this study. More than 50 per cent were children under 11 years of age. Our object was to determine (1) the predominating organism deep in the crypts; (2) whether the organisms recovered from the tonsils in patients with some general systemic disorder (tonsillitis, arthritis or nephritis) differed in any way from those recovered from the tonsils in patients with local symptoms only (tonsillitis), and (3) the carrier state. It is well known that acute tonsillitis is due to the hemolytic streptococcus. We were interested in determining whether this organism was still predominant at the time of the operation—from three weeks to six months after the last attack of acute tonsillitis.

TECHNIC OF PREPARING CULTURES FROM TONSILS

Immediately after removal, the tonsils and adenoids were placed in sterile specimen bottles and sent to the biologic laboratory of the Johns Hopkins Hospital. First they were soaked in 70 per cent alcohol for five minutes in order to kill the surface organisms. They were then rinsed in three changes of sterile salt solution and ground in a sterile mortar with sterile sand, and the pulp was put into a tube containing 10 cc. of beef infusion broth, p_H 7.4 (tube 1). Dilutions were made by placing 1 cc. from tube 1 into another tube containing 10 cc. of broth (tube 2). Again, 1 cc. from tube 2 was transferred to a tube containing 10 cc. of broth (tube 3). In addition two plates were poured, 15 cc. of beef infusion agar (p_H 7.4) being used, to which for one plate 1 cc. of blood and 0.1 cc. of the mixture in tube 2 had been added, and for the other plate, 0.1 cc. of the mixture in tube 3. The plates were incubated for eighteen hours at 37.5 C.

CONSIDERATION OF DIAGNOSES

The diagnoses in the 100 cases fall into thirteen different groups as listed in table 1.

TABLE 1.—*Classification and Incidence of Diagnoses*

	Condition	No. of Cases
1.	Chronic tonsillitis (without demonstrable complications)	38
2.	Chronic tonsillitis and cardiac complications	18
3.	Chronic tonsillitis and infectious arthritis	10
4.	Chronic tonsillitis and chronic sinusitis	10
5.	Chronic tonsillitis and chronic otitis media	10
6.	Chronic tonsillitis and nephritis	4
7.	Chronic tonsillitis and mediastinal tuberculosis	3
8.	Chronic tonsillitis and chronic pneumonia	2
9.	Chronic tonsillitis and anemia	1
10.	Chronic tonsillitis and choroiditis	1
11.	Chronic tonsillitis and keratitis	1
12.	Chronic tonsillitis and multiple neuritis	1
13.	Acute tonsillar abscess and septicemia	1

In group 1, chronic tonsillitis without demonstrable complications, the hemolytic streptococcus was the predominating organism in thirty-six of the thirty-eight cases and *Staphylococcus aureus* in two cases. The date of the last acute attack of tonsillitis before operation in this group ranged from three weeks to two months.

In group 2, chronic tonsillitis and cardiac complications, there are eighteen cases. In sixteen of these the hemolytic streptococcus was found, and in two the staphylococcus. Each of these patients had a heart lesion at the time of operation. The date of the last attack of tonsillitis ranged from three weeks to six months before operation. The majority of this group are children. These patients have been observed at frequent intervals since operation and without exception they have shown definite improvement in their general physical condition.

In group 3, chronic tonsillitis and infectious arthritis, the hemolytic streptococcus was found in almost pure culture in eight patients and *Staphylococcus aureus* in two.

In group 4, chronic tonsillitis and chronic sinusitis, the hemolytic streptococcus was the predominating organism in both the sinuses and the tonsils in each of the patients. There was some discharge in the nose of every patient at the time of operation. One patient had a bilateral ethmoidectomy and a radical bilateral operation on the antrum done at a later date. In several patients, however, the sinus infection cleared up without further treatment. All of the patients are free from any symptoms of sinus infection at present. In this particular group it seemed to us that the repeated sinus infections were secondary to the recurring attacks of tonsillitis.

In group 5, chronic tonsillitis and chronic otitis media, cultures from the ten patients all showed the

* From the Surgical Department of the Johns Hopkins University and Hospital.

hemolytic streptococcus. Here also the chronic or recurring attacks of otorrhea were secondary to a chronic infection in the nasopharynx and tonsils. In each of these patients the tonsils and adenoids were removed from three weeks to one month after the last acute upper respiratory tract infection.

In group 6, chronic tonsillitis and nephritis, focal infections in the tonsils and accessory nasal sinuses are usually due to the hemolytic streptococcus, and the recognition and removal of all such infections is an important part of the therapy. Focal infection and the type of organism in relation to the various renal disorders have been the subject of a special investigation by Dr. Warfield Longcope.[1]

In group 7, chronic tonsillitis and mediastinal tuberculosis, the hemolytic streptococcus was the predominating organism grown from the tonsils in each of the three cases. The patients have improved generally. The mediastinal shadow has decreased in two and, after six months, is unchanged in the third patient.

In group 8, chronic tonsillitis and chronic pneumonia, there are two children, both under 5 years of age. These patients still had some signs of pneumonia at the time of operation. The cultures from the tonsils showed the alpha hemolytic streptococcus in almost pure culture in each case. The children were last seen two months after operation and the lung signs had entirely disappeared. It is interesting that the operation and the ether anesthesia did not cause an increase in the lung symptoms.

In group 9, chronic tonsillitis and anemia, there is only one case. The patient was admitted to the hospital with very marked malnutrition and secondary anemia. There was a history of several mild attacks of tonsillitis, the last occurring about four months before operation. The tonsils were removed and the culture showed the alpha hemolytic streptococcus in pure culture. At the time of operation the patient's hemoglobin was 63 per cent, but before she left the hospital it had increased to 74 per cent and she had gained 30 pounds (14 Kg.). This improvement was due to rest in bed, transfusions and the elimination of all foci of infection.

The culture from the tonsils of the one patient in group 10, chronic tonsillitis and choroiditis, showed *Staphylococcus aureus* and diphtheroids. The patient had only occasional mild sore throats, but the tonsils showed evidence of a long standing chronic infection. The choroiditis cleared up two weeks after operation. In toxic choroiditis the most important therapeutic measure is the removal of all foci of chronic infection. The accessory nasal sinuses should be carefully investigated before it is decided that the tonsils are the only focus.

The one patient in group 11, chronic tonsillitis and keratitis, gave a history of repeated attacks of tonsillitis. The last attack occurred about one month before the tonsillectomy. The culture from the tonsils showed a heavy growth of the alpha hemolytic streptococcus.

In group 12, chronic tonsillitis and multiple neuritis, was one patient, a girl, aged 10 years, with a history of repeated sore throats usually followed by multiple neuritis. With each attack of sore throat the neuritis seemed to be more severe. The last attack of tonsillitis occurred three weeks before operation. The cultures from the tonsils showed many colonies of alpha and beta hemolytic streptococci. The patient was last seen three months after operation and the note made at this time was that she had not complained of pain; her grip was strong; the leg muscles were strong, and she walked and ran naturally.

The patient in group 13, acute tonsillar abscess and septicemia, was a white boy, aged 6 years, who had a sore throat with fever and marked cervical adenitis which began ten days before admission to the hospital. The condition was growing worse under compresses and conservative treatment and the child was admitted as an emergency case. The right tonsil protruded far beyond the median line. The cervical glands were large and tender on this side. After failure to locate a peritonsillar abscess, the tonsils and adenoids were removed. An abscess was found just under the capsule in the lower third of the right tonsil. For several days the temperature had been septic and a blood culture taken just before the operation showed four colonies of hemolytic streptococci to each cubic centimeter. The cultures from the tonsils showed many colonies of the same organism. The temperature gradually became normal, after repeated blood transfusions, and the blood culture negative. The patient has gained 10 pounds (4.5 Kg.) and is in excellent physical condition. No metastatic abscesses developed, and no permanent injury of the kidneys or joints resulted.

TABLE 2.—*Age Incidence of Organisms in Tonsils*

Age, Years	Streptococcus Hemolytic	Staphylococcus Aureus	No Growth
1 to 5	22	1	..
6 to 10	32	1	1
11 to 15	8	..	..
16 to 20	7	..	..
21 to 25	8	..	..
26 to 30	6	1	..
31 to 40	6	..	..
41 to 45	2	1	..
46 to 50	0	2	..
51 to 60	0	3	..
Total	91	8	1

The general surgeon has a profound respect for an acute infection with this organism and whenever possible will postpone operative measures until the acute stage has passed and the infection has localized. Nose and throat surgeons, on the other hand, often advise the removal of tonsils and adenoids during the acute stage of the infection. Such a procedure is undoubtedly associated with a grave risk of general bacteremia or septicemia, particularly since it is known that in more than 90 per cent of the cases the predominating organism is the hemolytic streptococcus. Under certain conditions, as in the case just cited, it is absolutely necessary to remove the tonsils and adenoids during the acute stage of the infection, but it is always safer to delay operation for at least a month after an acute tonsillitis.

It is interesting to note that more than 50 per cent of the ninety-one patients with a hemolytic streptococcus in the tonsils were children. This is shown in table 2.

COMPARISON OF TONSIL AND ADENOID CULTURES

The adenoid tissue was removed and the technic used in making cultures was the same as that used for the tonsils. In eighty-one cases the hemolytic streptococcus was the predominating organism in both the tonsils and the adenoids. In eight cases a staphylococcus was the predominating organism in both the tonsils and the adenoids. In ten the staphylococcus predominated in the adenoids, while cultures from the tonsils of the same patient showed a pure culture of the hemolytic

1. Longcope, W. T.; O'Brien, D. P., and others: Relationship of Acute Infections to Glomerular Nephritis, J. Clin. Investigation 5:7 (Dec.) 1927.

streptococcus. In one case there was no growth in either the adenoids or the tonsils.

In twelve patients swabs from the surface of the tonsils were taken just before operation in order to compare the type of organism on the surface with those obtained from the interior of the tonsils and adenoids after removal. The results of these cultures are shown in table 3.

TABLE 3.—*Results of Cultures*

Case	Years	Diagnosis	Throat Culture	Adenoid Culture	Right Tonsil	Left Tonsil
1	8	Chronic tonsillitis	Alpha hemolytic streptococcus	Staphylococcus albus	Beta hemolytic streptococcus	Beta hemolytic streptococcus
2	10	Chronic tonsillitis	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus
3	3	Rheumatic endocarditis	Alpha hemolytic streptococcus	Staphylococcus albus	Alpha hemolytic streptococcus	Alpha hemolytic streptococcus
4	6	Cardiac	Alpha and beta hemolytic streptococcus	Alpha hemolytic streptococcus	Alpha hemolytic streptococcus	Beta hemolytic streptococcus
5	46	Chronic tonsillitis	Staphylococcus	Staphylococcus	Staphylococcus	Staphylococcus
6	46	Arthritis	Alpha and beta hemolytic streptococcus	Alpha hemolytic streptococcus	Beta hemolytic streptococcus	Alpha hemolytic streptococcus
7	22	Chronic tonsillitis	Alpha hemolytic streptococcus	Alpha hemolytic streptococcus	Alpha hemolytic streptococcus	Alpha hemolytic streptococcus
8	27	Chronic tonsillitis	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus
9	5	Chronic tonsillitis	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus aureus	Staphylococcus
10	19	Chronic tonsillitis	Beta hemolytic streptococcus	Staphylococcus	Staphylococcus	Staphylococcus
11	22	Chronic tonsillitis	Alpha and beta hemolytic streptococcus	Beta and alpha hemolytic streptococcus	Alpha hemolytic streptococcus	Alpha hemolytic streptococcus
12	35	Arthritis	Alpha hemolytic streptococcus	Staphylococcus aureus	Alpha hemolytic streptococcus	Alpha hemolytic streptococcus

In ten of these patients the predominating organism grown from the surface swab was also found in large numbers in cultures made from the interior of the tonsil with the technic that has been outlined. In only two cases was there a marked difference between the surface and the tissue cultures.

SUMMARY

1. The tonsils and adenoids were removed at operation in 100 patients with a history of acute attacks of tonsillitis. After washing in 70 per cent alcohol, the tonsils were ground in sand and cultures were made. The hemolytic streptococcus was the predominating organism grown in 91 per cent and the staphylococcus in 8 per cent. In one case no growth was obtained. There is no apparent connection between the predominating type of organism found in the tonsils and the clinical symptoms.

2. The majority of these cultures were made during the winter months, and all were made between November, 1927, and April, 1928.

3. More than 50 per cent of the patients from whose tonsils a hemolytic streptococcus was grown in pure culture were children under 11 years of age. The majority of those in whom a staphylococcus was the predominating organism were over 25 years of age.

4. The average time between the last acute attack of tonsillitis and the tonsillectomy was one month.

5. In eighty-one cases the hemolytic streptococcus was the predominating organism in both the tonsils and the adenoids. In eight there was a heavy growth of staphylococcus from both the tonsils and the adenoids. In ten there was a heavy growth of staphylococcus from the adenoid culture and a pure culture of streptococcus from the tonsils.

6. A culture made by swabbing the surface of the tonsil is a reliable index of the predominating organism in the crypts.

ANTIGENIC PROPERTIES OF EVAPORATED MILK*

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Medical literature contains fairly numerous reports of distressing manifestations of sensitization to cow's milk. This sort of food allergy has been noted most frequently in infants. When such sensitization is present it makes impossible the usual formulas fed, for one reason or another, in place of mother's milk. A number of other substitutes for breast milk have been tried in these cases. Some of them appear to be fairly satisfactory and are obtainable in most localities. However, a commodity in more common use and more closely resembling mother's milk than many of the things tried in place of cow's milk would be desirable.

It has been found that heating certain proteins [1] so changes them that new antigens are formed. If the heat to which cow's milk is subjected in the process of preparation of commercial evaporated milk (220 degrees for forty minutes or 240 degrees for twenty minutes) alters the antigenic properties of the proteins present, it seemed possible that this readily available and sanitary product might prove of value in the feeding of infants sensitive to ordinary cow's milk.

With the purpose of determining whether the proteins are changed during the process of preparing evaporated milk, a comparison of the antigens present in milk before and after evaporation has been made. Sensitization tests were performed on guinea-pigs. One group of rabbits was also immunized with evaporated milk and another group with pasteurized milk. The antibody content of the serums of the two groups of rabbits has been compared. The antigenic properties of the casein present in each of the classes of milk used have been examined separately from those of the whey proteins. The various antigens [2] present in the whey were not separated but were used in the form of entire whey, as their separate study did not seem necessary for practical purposes.

SENSITIZATION TESTS WITH GUINEA-PIGS

Approximately 140 guinea-pigs have been employed in the performing of these sensitization tests. The majority of them were given intraperitoneal injections of either 1 cc. of raw or pasteurized milk or 1 cc. of evaporated milk in a dilution of 1:2. After two weeks or more had been allowed for the maximum sensitization to develop, a second injection was given to each of the animals and the magnitude of the resulting reac-

* This work has been aided by a grant from the Evaporated Milk Association.

* From the Department of Pathology of the University of Chicago and the Otho S. A. Sprague Memorial Institute.

1. Furth, J.: Antigenic Character of Heated Protein, J. Immunol. **10**: 777 (Sept.) 1925.

2. Wells, H. G., and Osborne, T. B.: Anaphylaxis Reactions with Purified Proteins from Milk, J. Infect. Dis. **29**: 200 (Aug.) 1921.

tion noted. The three varieties of whole milk (raw, pasteurized and evaporated), as well as the casein and combined whey proteins derived from them, were tried at different times. One hundred of the guinea-pigs received the second injection intravenously. To the others, the doses that caused shock were given intraperitoneally, as were the preliminary sensitizing doses.

The minimum quantities of casein and whey proteins necessary to cause lethal reactions regularly in individuals of the various groups of sensitized animals are given in table 1. The great majority of the sensitized guinea-pigs were used in an effort to determine the quantities of whey proteins that were necessary to cause fatal anaphylactic shock. Fewer animals were injected with second or shock-producing doses of casein from the various classes of milk as there seemed to be less likelihood of a reduction in its antigenic properties since it is not coagulated by heat. The tests which were performed bore this out, as no quantitative difference in the anaphylactic response to caseins derived from pasteurized and from evaporated milk was detected.

It does appear that a certain alteration of the whey proteins is produced during the process of preparing evaporated milk. The quantity of protein obtainable from whey from evaporated milk was always less than half that obtained from whey from raw or pasteurized milk as determined by the Kjeldahl method. In the preparation of the wheys used in this work, the casein was always precipitated by the addition of 90 cc. of half normal hydrochloric acid to each liter of whole raw or pasteurized milk, or to each 500 cc. of evaporated milk. When whey was prepared from evaporated milk, a quantity of water equal to that of the milk used was also added, since the volume of evaporated milk is reduced one half during the evaporating process. The acidity of the whey was neutralized with sodium hydroxide before animals were injected with it, but care was used not to make the whey alkaline. When the whey was tested for protein content by the Kjeldahl method, the precipitate formed by the addition of 5 per cent of trichloracetic acid to measured quantities of the whey was used.

TABLE 1.—*Minimum Quantities of Proteins from Different Classes of Cow's Milk Necessary to Cause Regularly Lethal Anaphylactic Reactions in Sensitized Guinea-Pigs on Intravenous Injection*

	Whey Proteins from			Casein from	
	Raw	Pasteurized	Evaporated	Pasteurized	Evaporated
Raw milk sensitized.....	0.1 mg.	0.1 mg.	3 mg.	1 mg.	1 mg.
Pasteurized milk sensitized....	0.1 mg.	0.05 mg.	2 mg.	1 mg.	1 mg.
Evaporated milk sensitized...	2 mg.	1 mg.	0.3 mg.	1.5 mg.	1.5 mg.

These results indicate that, in the pasteurization or evaporation of cow's milk, the casein does not suffer any noteworthy reduction in its antigenic properties. This is to be expected in view of the noncoagulability of casein.

Apparently the heating of the coagulable proteins of the whey in preparing evaporated milk has somewhat altered its immunologic properties, for the minimum lethal dose of such whey protein is larger than that of the whey proteins from either raw or pasteurized milk. The effect of the heating on immunologic specificity is especially shown by the greater reactivity of the heated whey proteins in animals sensitized with the heated milk than in animals sensitized with raw milk.

Guinea-pigs that had been sensitized by an intraperitoneal injection of 1 cc. of raw milk had fatal anaphylactic shock when given 0.1 mg. of raw milk whey protein, but 3 mg. of whey protein from evaporated milk was required to produce fatal reactions in other animals similarly sensitized. Guinea-pigs sensitized to a similar quantity of pasteurized milk responded to injections of whey proteins from the various classes of milk in the same manner as the animals sensitized to raw milk.

TABLE 2.—*Precipitin Reactions*

		Casein		Whey Protein	
	Number	Evaporated	Pasteurized	Evaporated	Pasteurized
Evaporated milk immunized	35	1:20,000	1:50,000	1:50,000	1:5,000
	37	1:50,000	1:20,000	1:50,000	1:10,000
	38	1:50,000	1:20,000	1:50,000	1:10,000
Pasteurized milk immunized	40	1:1,000	1:2,000	1:2,000	1:50,000
	42	1:5,000	1:5,000	1:2,000	1:20,000
	46	1:2,000	1:2,000	1:2,000	1:50,000
	47	1:2,000	1:2,000	1:2,000	1:50,000

Sensitization by intraperitoneal injection of 1 cc. of a 1:2 dilution of evaporated milk enabled 0.3 mg. of whey protein from evaporated milk to produce fatal anaphylactic shock. Two milligrams of pasteurized whey protein was required to kill other animals similarly sensitized.

ANTIBODY PRODUCTION BY RABBITS

In one group of four rabbits, 22 cc. of whole pasteurized milk was given to each rabbit by a series of intraperitoneal injections during a period of twenty-five days. Each of another group of three rabbits received 22 cc. of evaporated milk, which had been diluted 1:2 with water, during the course of a like series of injections. Ten days after the last of the series of injections, the rabbits were bled to obtain serum. The serums of the different rabbits were tested for the presence of precipitins and complement binding antibodies. Four antigens were used. Two of them were caseins prepared from pasteurized and from evaporated milk. The others were the whey proteins obtained from pasteurized and from evaporated milk.

In table 2 the greatest dilutions of the different antigens that produced definite precipitate in the presence of the various rabbit serums are given. Rabbits immunized to pasteurized milk did not possess as strong precipitins for casein as did those immunized to evaporated milk. The serums from the two groups of rabbits reacted in the same dilutions with casein whether it had been prepared from pasteurized milk or from evaporated milk. Five times as great a quantity of pasteurized whey protein as of evaporated whey protein was required to produce a precipitate in the presence of serums from rabbits immunized to evaporated milk. When serums from rabbits immunized to pasteurized milk were tested, it was found that approximately twenty-five times as much evaporated whey protein as pasteurized whey protein was required to produce a precipitate.

TABLE 3.—*Complement Fixation Reactions*

		Casein		Whey Protein	
	Number	Evaporated, Cc.	Pasteurized, Cc.	Evaporated, Cc.	Pasteurized, Cc.
Evaporated milk immunized	35	0.02	0.02	0.02	0.05
	37	0.02	0.05	0.05	0.05
	38	0.05	0.05	0.05	0.05
Pasteurized milk immunized	40	1	1	0.05	0.05
	42	1	1	0.05	0.05
	46	1	1	0.5	0.05
	47	1	1	1	0.05

The complement fixation tests also showed that casein from evaporated milk is very similar in antigenic activity to that from pasteurized milk. Approximately the same differences in the antigenic properties of the whey proteins from the two classes of milk were shown as in the case of the precipitin tests. The quantities of the various serums required to fix complement with each of the four antigens used are given in table 3. The different antigen solutions all contained similar amounts of protein. This was determined by weight when antigens were prepared from dry casein, and by Kjeldahl test in the case of the whey proteins.

CONCLUSIONS

1. Heat applied to cow's milk in the process of preparing evaporated milk does not appear to change the antigenic capacity of the casein as determined by anaphylactic reactions.

2. Evidence has been found that there is an alteration in the antigenic properties of whey protein present in raw milk by the heat applied to it in order to evaporate and sterilize cow's milk by the usual methods employed. This is especially seen in a change of specificity, whereby heated whey proteins are less reactive in animals sensitized with raw or pasteurized milk, or with antibodies against pasteurized milk.

THE TREATMENT OF NONMALIGNANT UTERINE BLEEDING BY RADIUM

TWO HUNDRED AND FIFTY CASES TREATED AT THE FREE HOSPITAL FOR WOMEN, BROOKLINE, MASS., BETWEEN 1916 AND 1928

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Radium was first used at this clinic in February, 1917, for the treatment of menorrhagias and metrorrhagias from benign causes. To 1928, 250 patients had received local radium application. With the exception of forty-one in whom a diagnosis of fibroid could be definitely made, only one patient in this series had any demonstrable pathologic condition that might account for the abnormal flowing. Pelvic and intra-uterine examination under anesthesia was negative. There was no gross endocrine dysfunction. Except for one case of idiopathic thrombopenic purpura, there was no constitutional blood disease.

The following considerations are dwelt on in this analysis: (1) age, marital condition and complaints; (2) immediate result; (3) later result as determined by follow-up; (4) the relation between the amount of irradiation and the result; (5) recurrence and its treatment, and (6) the number, courses and results of later pregnancies.

RADIUM FOR FIBROIDS

Although fibroids may be coincidental and not causal in uterine bleeding, it seemed best to study separately the forty-one patients with this tumor. These comprise 4.8 per cent of all those with fibroid treated between 1916 and 1928 and were selected for radium treatment on the following basis: The tumors were not pedunculated, submucous or more than 14 cm. in greatest diameter, the majority being less than 5 cm.; the pelvic organs were freely movable and not tender, indicating absence of adhesions or pressure on surrounding structures; there were no associated conditions demanding surgical intervention; in five instances obesity, circulatory disease and renal disease interdicted surgery. There was no evidence of pelvic inflammation, a generally accepted contraindication to radium, at least in benign conditions.

There was a family history of tuberculosis in 7.3 per cent, and of malignant disease in 7.3 per cent. Seventeen patients had had pelvic operation; curettage had been done in eleven, oophorectomy in four, and excision of cervical polyp in two. None of the patients in this group were under 34 years of age. Twenty-six were between 34 and 46, and fifteen between 46 and 56. Ten, or 24.8 per cent, were single. Five married patients, 12.1 per cent, had never been pregnant. The average number of pregnancies per married patient was 3.2; of children, 2.5.

Before the present illness began, thirty-three of this group had had normal menstruation, one had passed the menopause, and seven had never menstruated normally. Abnormal flowing was complained of by thirty-eight, flowing after the menopause by one, weight in the pelvis by one and dysmenorrhea by one. The duration of symptoms varied from one month to fifteen years; it was less than two years in one half of the cases.

The method of screening and applying the radium both in this and in the following group was as follows: The salt, in glass capsules containing 25 or 50 mg. (in terms of element), surrounded by 0.5 mm. of silver and 1 mm. of red rubber, was inserted in the uterine cavity. The vagina was packed with gauze to hold away the bladder and rectum and to keep the radium in place.

All patients left the hospital relieved by the end of two weeks. Six have not been traceable since. One patient died of "pernicious anemia" (state records) two years and eleven months later. Another, with hypertension and nephritis, complained of headache, and of soreness in the right lower quadrant of the abdomen one year later, the catamenia being infrequent and slight in amount. This patient committed suicide four years and four months after treatment. A third patient, who had been operated on for peptic ulcer twelve years before the radium treatment, had normal menstruation after eight months of amenorrhea. She died of intestinal obstruction five years and seven months afterward. The fourth had a recurrence of flowing, underwent hysterectomy two months later and died of pulmonary embolus. Two more patients had a hysterectomy later, one for recurrence three months after radium treatment, the other for slight watery discharge two years later at another hospital. No gross or microscopic change attributable to the use of radium could be found in the specimens removed at this clinic.

One patient stained for two years and then ceased spontaneously. Regular menstruation was established in six patients; infrequent flowing, small in amount, occurred in four, and amenorrhea resulted in eighteen. All were well for from six months to seven years after treatment. Five complained of a temporary annoying discharge of a thin, watery character. The majority experienced hot flushes, but not to an unusual degree. Most patients gained weight, from 4 to 28 pounds (2 to 13 Kg.), usually from 4 to 10 pounds (5 Kg.). Nervousness or irritability was not increased by the treatment. In one case no change could be found in the fibroid at a later examination; in four cases it was considerably (about one-half) smaller and in three it had apparently disappeared.

No sharp correlation could be made between the dosage of radium and the effect, although, on the whole, from 1,000 to 1,500 mg. hours seemed to be the optimum dose when the fibroid uterus did not hold the ovaries too far away from the radium.

No later pregnancies occurred in this group. None of the patients, however, would, by the usual criteria, have been considered likely to become pregnant had radium not been employed.

RADIUM TREATMENT FOR UTERINE BLEEDING WITHOUT DEMONSTRABLE PATHOLOGIC BASIS

In a group of 209 patients given radium treatment for uterine bleeding without demonstrable cause a family history of tuberculosis was given by 9.5 per cent and of malignant disease by 8.1 per cent. One hundred and thirteen of the group, or 54 per cent, had had 288 operations of all sorts, 71.2 per cent of which had been pelvic.

Fourteen patients were under 20 years; fifty-three were from 20 to 35; 113 were from 35 to 50, and twenty-nine were over 50.

Forty-eight, or 22.9 per cent, of the patients were single. Thirteen married patients had never been pregnant —a sterility percentage of 8. (The percentage of sterility for women in general is usually at least 9.) The average number of pregnancies per married patient was 4.3, of children, 3.4. (For women in general these figures are between 2 and 3.)

Dysmenorrhea was complained of by thirty-two patients (15.2 per cent), mostly young and unmarried women. Six patients had passed the menopause before the flowing began. All but ten of the series had had regular menstruation, normal in amount, before the onset of the abnormal flowing, which was the chief complaint in every instance. The duration of illness varied from one week to fifteen years, in most cases being one year or less. A number of patients dated their illness from a delivery, a miscarriage or an abortion. Many had had from five to twelve children. It is not unlikely that loss of uterine tone may account for the flowing in some of these cases. In one patient epilepsy and abnormal flowing began after an attack of influenza in 1919. The disorder began after a pelvic operation in another. One patient had purpura hemorrhagica. Nineteen patients were suspected of having a small fibroid, but careful examination under ether anesthesia was not sufficiently conclusive. It is probable that some of these rather large but symmetrical uteri were of the diffuse adenomyoma or endometrioma type. Two patients past the menopause had cervical polyps. In the majority of cases no etiologic factor could be found; in the girls under 20 and in the older single women there was presumably an ovarian upset of some sort; undoubtedly in many healthy, fertile women the flowing resulted from ovarian hyperactivity.

The 209 patients were treated by the method already described; i. e., screened radium was inserted into the uterus following examination and diagnostic curettage under ether. Hypertrophy or hyperplasia of the endometrium was found microscopically in 51.6 per cent of the cases; the remainder did not show anything unusual.

RESULTS

On admission, one patient was moribund from excessive flowing of ten days' duration. She died the following day. Immediate relief within ten days was afforded to all the others, probably as a result of curettage. Thirty patients, 14.3 per cent, are not traceable.

There were twelve recurrences. Five patients were under 22 years of age and had received from 75 to 500 mg. hours at the first treatment. One, with purpura hemorrhagica, is now apparently well nine years after her first admission, having had three local radium applications and intensive ultraviolet ray treatment over the spleen. The other four are well and their periods are fairly regular from one to six years after the first treatment and from six months to five years after the second treatment. Of the remaining seven patients, all over 31 years, two had recurrence of abnormal flowing less than one year after irradiation; one is now well nine years later, an artificial menopause having been established at the age of 42 by a second treatment; the other had a normal menopause three years later without further treatment. Five patients underwent hysterectomy from three months to five years and six months later.

Regular menstruation was established by a single treatment in thirty-seven cases. The dosage varied from 100 to 1,000 mg. hours, averaging in most cases from 300 to 600 mg. hours. All the patients were well from six months to eleven years later, twenty-two having passed the three year interval.

Menstruation irregular but not abnormal in amount occurred in five cases following doses of from 250 to 800 mg. hours. All the patients were well from two to seven years after treatment.

Infrequent and scanty menstruation resulted from doses of from 150 to 1,000 mg. hours, mostly from 200 to 500, in twelve patients. All were well from six months to eleven years later.

An artificial menopause was established in 112 cases, or 62.9 per cent. Twenty-six patients of this group had from one to four periods before the eventual amenorrhea. One patient died of "carcinoma of the colon and rectum" (state records) two years and two months later; another died of "carcinoma of the cervix" six years later. (This patient had had 400 mg. hours.) All the others were well from six months to twelve years after treatment, 55 per cent having passed the three year interval. The dosage varied as follows: 45 per cent received from 600 to 1,000 mg. hours; 35 per cent, 1,200 mg. hours; 10 per cent, from 400 to 500 mg. hours, and 10 per cent, from 1,400 to 2,400 mg. hours.

Sixty-nine patients had hot flushes which lasted from six months to six years and varied markedly in frequency and intensity. They were similar to those of the normal menopause, in only five instances being the cause of noticeable discomfort. Twenty-nine patients mentioned nervousness and irritability, symptoms difficult to interpret in relation to irradiation since they figure so commonly in all gynecologic conditions.

Vaginal discharge, usually thin and odorless, sometimes brownish and lasting from one to twelve months, was mentioned by twenty-eight patients. It was annoying in only eleven instances.

A loss in weight of from 5 to 25 pounds (2 to 11 Kg.) occurred in nine patients. Seven reported no change. Gains, varying from a few to 70 pounds (32 Kg.), usually averaging from 5 to 25 pounds, were reported by sixty-two patients.

EFFECT OF RADIUM TREATMENT ON PREGNANCY

Since one of the disadvantages of radium has been the questionable causation of sterility, miscarriage or abnormal children, an analysis of this phase was made. After a careful study of the whole series as to age,

marital condition, repeated abortion, previous fertility or sterility and general condition, it was concluded that only thirty patients were potential child-bearers at the time of treatment. Thirteen of this group had twenty pregnancies, the results of which are shown in the accompanying table.

Although the figures in the table suggest that radium produces harmful effects as regards pregnancy, it must be remembered that these patients were distinctly abnormal and that the abnormal flowing was part of a local, if not indeed a constitutional, endocrine disturbance.

SUMMARY AND CONCLUSIONS

In selected cases of uterine fibroids, radium application resulted in cure in 88.2 per cent, improvement in 5.8 per cent and failure in 5.8 per cent.

Of the 209 patients with uterine bleeding in the absence of any demonstrable pathologic condition, 54 per cent had had previous operations, 71.2 per cent of which had been pelvic.

Sixty-eight per cent of the patients were over 35 years of age.

Twenty-three per cent were girls or unmarried women. Among the married patients the percentage of sterility was low, being 8, and the fertility was higher than the average for women in general. Only 20 per cent had had abnormal menstruation (dysmenorrhea and irregular flowing) before the onset of illness.

Results of Twenty Pregnancies After Radium Treatment

Abortions	2
Miscarriage	1
Premature deliveries (two born dead; one died of "convulsions")	3
Full term deliveries (one infant weighing 1½ pounds died; two died from "instrumental causes;" three died at birth—circumstances unknown)	6
Full term normal living infants. (These survived and are normal and well from two months to eleven years after delivery, according to birth certificates and replies from patients)	8

Possible factors in the etiology of abnormal flowing without demonstrable pathologic conditions are: many pregnancies, endometrioma of the uterine wall or ovary, previous pelvic operation, local or systemic endocrine dysfunction, subclinical constitutional blood disease, systemic blood disease and previous general infections. Uterine curettings do not give any microscopic clue except when they show evidence of infection.

On the basis of follow-up reports, 50 per cent of which were made after five years or longer, recurrence occurred in 6.7 per cent and cures resulted in 93.3 per cent.

There is a fairly definite relation between the amount of radiation and the "depressant" effect on the ovary, the factor to be considered being that younger patients require relatively slightly more dosage to produce the desired effect.

No abnormal menopausal symptoms could be unquestionably attributed to the use of radium.

Thirteen patients, 7.2 per cent of those traceable, had twenty pregnancies after treatment, only eight of which were normal and resulted in normal children. When the amount of relief afforded by radium is balanced against the abnormal condition of the patients before treatment and the possibility of necessary hysterectomy, the case against radium as regards pregnancy is not entirely one-sided.

None of the patients in the series had malignant disease at the time of treatment and only two patients are known to have developed carcinoma later, despite the active sexual life and cancer age of the majority. The lack of malignant disease may be partly explained by the active function of the pelvic organs without resulting stasis and by the absence of local infection.

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ASEPTIC PROTEIN SHOCK IN NEPHRITIS

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The rationale for aseptic protein injections in nephritis patients is furnished by the coordinate consideration of the pertinent pathologic and biologic facts. Nephritis is recognized as the result of a general and renal capillary toxicosis brought about in most instances by the action of toxins of bacterial origin. This conception explains not only the morphologic changes in the glomeruli and the appearance of blood in the urine but also the physiologic deficiencies of the nephritic kidney and of the intermediate structures.

It was ascertained by the experimental research work of Jaffe and Petersen of Chicago that bacterial toxins may materially deteriorate the constitution of the capillaries. This may lead either to a pronounced permeability of the capillary walls, permitting diapedesis of the red cells, or to rupturing of these blood vessels, causing hemorrhage by rhexis of variable degree.

The toxic harm to the endothelial cells concerned produces physiologic deficiencies in two possible ways: Either retention of the organic end-products of metabolism occurs within the blood, in case the glomerular eliminatory function is mainly impaired, or the retention of these metabolic slags will take place within the intermediate structures, if their capillary system is deteriorated to a sufficient degree.

Consideration of the physiologic potentialities of the reticulo-endothelial system explains the therapeutic possibilities of aseptic protein shock and the favorable results actually obtained by its administration. It is a specific functional quality of the macrophages of this system to imbibe, to store and eventually to neutralize toxins. It was also ascertained that this toxophagic activity is stimulated by the absorption by these cells of proteins of other provenience. The injection into the patient of aseptic proteins furnishes the material for such a stimulation. After the primary infectious foci are eliminated, the reenforced absorption by the macrophages of the circulating toxins smooths the way for the reparative forces of the body. Under such conditions the capillaries may regain their normal constitution and the pertinent secretory cells may resume their eliminatory function.

TABLE 1.—*Concentration Test in Case 4: Less Than 200 Cc. Total Fluid Intake in Twelve Hours*

9 a. m.	500 cc.	1.012
12 noon	350 cc.	1.013
3 p. m.	200 cc.	1.014
6 p. m.	200 cc.	1.015

The specific efficacy in nephritis of aseptic protein shock is evidenced by the disappearance of blood from the urine, by the prompt reduction in number and the eventual absence of casts in the urine, and by the return of chemical determinations of the blood toward the normal level. A coexisting nephritic edema will

promptly subside. All these improvements may readily be explained as being due to the detoxifying of the system as set forth in the contentions already stated.

The return of the capillary walls to the norm prevents transition of blood in the urine; the inhibition to toxic necrobiosis of the renal cells stops the formation of urinary casts; the revived activity of the eliminatory cells precludes any further accumulation of organic end-products in the blood and in the intermediate structures. The subsidence of nephritic edema may be explained on the same basis, the nephritic edema rightly being considered a toxic transudation.

A striking instance of the efficacy of protein shock is furnished in the treatment of elderly men suffering from urinary retention and nephritis with nephrotic contribution, the so-called mixed nephritis. In a great many instances, though free drainage of the bladder is followed by a decided amelioration of the local condition, the renal function does not sufficiently improve in spite of the institution of the routine antinephritic regimen.

In cases that are at all amenable, the production of protein shock inaugurates a decided improvement. Not only, as indicated by the results of chemical analysis of the blood, is there a pronounced reduction in the retention of the organic metabolic slags, but also the

TABLE 2.—*Concentration Test in Case 4: Less Than 200 Cc. Total Fluid Intake in Twenty-Four Hours*

9 a. m.	300 cc.	1.012
12 noon	250 cc.	1.013
3 p. m.	200 cc.	1.015
6 p. m.	200 cc.	1.015

elimination of chlorides increases. The latter phenomenon is due to the fact that the capillary system of the intermediate structures, where the retention of the chlorides occurs, begins to recover under the detoxifying influence of the stimulated macrophages.

The choice of the proteins to be injected and the mode of their administration is guided by the following considerations: Milk, one of the most popular compounds for intramuscular injections, always produces a pronounced general reaction. This is an undesirable by-effect, because in nephritis the heart is always involved to some extent, and such a fulminant reaction throws an additional strain on the cardiovascular system. The casein derivatives of milk used for the same purpose do not produce a severe general reaction, but their therapeutic effect is uncertain and variable. There remains the human blood taken from a donor and the patient's own blood.

The transfusion from person to person calls for typing and is always a rather elaborate procedure. This becomes especially irksome if repeated infusions are indicated. The procedure may be reserved for cases in which, in addition to the protein shock needed on account of the exsanguinated condition of the patient, the transfusion of a considerable amount of blood is deemed desirable.

The injection of the patient's own blood is a simple procedure and its therapeutic efficacy is equivalent to that of any other protein. These injections are not followed by any appreciable local or general reaction.

Under usual antiseptic precautions 5 cc. of blood in infants, 10 cc. in adolescents and adults, is aspirated from a superficial vein and immediately reinjected into a gluteus muscle. It is part of the routine to administer this autohemotherapy twice within twenty-four hours on two successive days, and then for a week to await results. In case the urinary and blood control calls for a continuance of these injections, they are administered once in twenty-four hours every other day.

If for some technical or other reason hemotherapy is not deemed advisable in an infant, one may resort to the administration of casein. One third of the 1 cc. ampule of the current 5 per cent casein emulsion is injected hypodermically. It is advisable to await the complete subsidence of any reaction before such an injection is repeated.

TABLE 3.—*Concentration Test in Case 4 Ten Days After Autohemotherapy*

9 a. m.	150 cc.	1.018
12 noon	200 cc.	1.020
3 p. m.	200 cc.	1.024
6 p. m.	150 cc.	1.028

It is obvious that after the efficacy of protein shock in nephritis is once established in test cases, the routine antinephritic regimen should simultaneously be instituted and kept up in all instances of nephritis.

In four out of sixty-seven cases of well defined nephritis, the autohemotherapy failed to produce any appreciable relief of the symptoms. This rather favorable percentage, together with the generally accepted claim that autohemotherapy is an inocuous intervention, may permit the suggestion that the method be given an extensive trial in antinephritic therapy.

The following are the specialized reports of five cases selected on account of the failure of the routine treatment and the signal success of autohemotherapy. In all the conditions were so grave that they may fairly be adjudged test cases.

REPORT OF CASES

CASE 1.—A youth, aged 18, had subacute appendicitis and unilateral glomerulonephritis. The urine from the right kidney was slightly cloudy; granular and epithelial casts were present, and the albumin content was estimated at 0.5 per cent; there was microscopic hematuria. Four weeks after the appendectomy, in spite of sustained routine antinephritic treatment, the urine presented the same abnormalities; chromocystoscopy (indigo carmine) showed a retarded and diminished output of the stain on the right side. Three gluteal injections of 10 cc. of the patient's own blood were given within six days. A complete urologic examination three weeks after the first autohemotherapy gave normal results in the urine drawn from both ureters.

TABLE 4.—*Concentration Test in Case 5: Less Than 200 Cc. Total Fluid Intake in Twelve Hours*

9 a. m.	450 cc.	1.009
12 noon	300 cc.	1.010
3 p. m.	200 cc.	1.011
6 p. m.	200 cc.	1.011

CASE 2.—In a primipara, aged 22, in whom pregnancy was estimated at about eight weeks, there was a rather indefinite history of previous nephritis. Slight edema of the eyelids was noted and 1 per cent of albumin was present in the urine, together with red cells, leukocytes and granular casts microscopically. The specific gravity was constant around 1.012. The systolic blood pressure was 165; the nonprotein nitrogen was 80, and there was indicanemia of first degree, without chloride retention. Three weeks of strict routine antinephritic treatment did not produce any change in the clinical picture, so autohemotherapy was done. Twice on two consecutive days 10 cc. of the patient's blood was injected into the gluteal mus-

cles. On the sixth, eighth and tenth days one injection of the same quantity was given. Ten days after the last injection the edema had subsided. The systolic blood pressure was 132, and the nonprotein nitrogen, 42; the indicanemia had disappeared. There was a faint trace of urinary albumin, but leukocytes, red cells or casts were not to be found in the urine. Delivery occurred at full term without any change in the urologic picture during the lying-in period.

CASE 3.—A boy, aged 6 years, had moderate nephritis which developed after acute tonsillitis. Under the routine antinephritic regimen there was a subsidence of symptoms within three weeks. Twenty-eight days after the attack of tonsillitis, a bilateral tonsillectomy was done. Two days after the operation there was bloody urine, oliguria, and edema of the eyelids and prepuce. The systolic blood pressure was 180, and the nonprotein nitrogen 80. One week of routine antinephritic treatment failed to bring about any appreciable change in the symptoms. On the eighth, tenth and twelfth days, 5 cc. of the patient's own blood was injected into the gluteus muscles. On the tenth day after the last injection, the systolic blood pressure was 110, and the nonprotein nitrogen 35. The edema had subsided; the urine was normal. From this date on, repeated examinations demonstrated normal conditions.

TABLE 5.—*Concentration Test in Case 5: Less Than 200 Cc. Fluid Intake in Twelve Hours*

9 a. m.	Quantity not exactly	1.010
12 noon	determined on ac-	1.011
3 p. m.	count of leakage	1.012
6 p. m.	around tube	1.012

CASE 4.—M. L., a man, aged 62, with involvement of the prostate, showed a systolic blood pressure of 180 and an excretion of 3,000 cc. of urine in twenty-four hours. The nonprotein nitrogen was 100; the sodium chloride eliminated in the urine was estimated at 8 Gm. in twenty-four hours. There was a moderate amount of hyaline and granular casts, and 2 per cent albumin. The wheal test was positive in one minute.

For three weeks the patient was on a protein poor diet, with the sodium chloride intake restricted to 3 Gm. in twenty-four hours. There was regular catheterization every eight hours. The fluid intake by beverage was 2,000 cc. a day. The systolic blood pressure was 180; 2,200 cc. of urine was voided in twenty-four hours. The nonprotein nitrogen was 90; the sodium chloride output was 10 Gm. in twenty-four hours. Albumin and casts remained the same.

Ten cubic centimeters of the patient's own blood was injected twice a day for two consecutive days; he was on a regular diet, and the fluid intake was not restricted.

The wheal test was positive in five minutes. The nonprotein nitrogen was 60; the systolic blood pressure was 165; the sodium chloride output was 12 Gm., and only isolated casts were present in the urine.

TABLE 6.—*Concentration Test in Case 5: Less Than 200 Cc. Fluid Intake During Twelve Hours*

9 a. m.	Quantity not exactly	1.012
12 noon	determined on ac-	1.014
3 p. m.	count of leakage	1.016
6 p. m.		1.016

CASE 5.—L. G., a man, aged 65, with prostatic involvement, had a systolic blood pressure of 190; 2,800 cc. of urine was voided in twenty-four hours containing 5 per cent albumin, numerous white blood cells, a few red blood cells and numerous casts of all descriptions. There was indicanemia of second degree. The nonprotein nitrogen was 110, and the sodium chloride output was 3 Gm. daily. Edema of both lower legs was present.

A cystostomy with permanent drainage was done, and the routine antinephritic regimen instituted, with reduction of the sodium chloride intake to 2 Gm. a day, maintained for sixteen days. On the seventeenth postoperative day, the systolic blood pressure was 185, there were very few white blood cells in the urine, but there were numerous hyaline and granular casts; there were no red cells. The nonprotein nitrogen was 100 and the sodium chloride output was estimated at 4 Gm. a day. The edema of the legs had disappeared. The wheal test was positive in one minute.

TABLE 7.—*Concentration Test With Less Than 200 Cc. Fluid Intake During Twelve Hours*

9 a. m.	Quantity not exactly	1.016
12 noon	determined on ac-	1.018
3 p. m.	count of leakage	1.020
6 p. m.		1.024

The patient was put on an eighteen day regular diet with about 4 Gm. of sodium chloride; 10 cc. of the patient's own blood was injected twice a day for two consecutive days. On the twenty-sixth day, the systolic blood pressure was 180; there was indicanemia of the first degree, and the nonprotein nitrogen was 90. In the urine a few white cells, and a few granular and hyaline casts were present, and there was 2 per cent albumin.

An injection of 10 cc. of the patient's own blood once in twenty-four hours was repeated four times every other day. Ten days after the last injection, the systolic blood pressure was 170; indicanemia was not present. The nonprotein nitrogen was 64. A trace of albumin, very few white cells and hyaline casts were present in the urine. The wheal test was positive in five minutes. The sodium chloride output was estimated at 10 Gm. for twenty-four hours.

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OTITIS MEDIA AND ITS RELATION TO GASTRO-ENTERITIS *

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Pediatricians and otologists are mutually interested in any connection that may exist between infections in the ear or nose and throat and disturbances of the gastro-intestinal tract. In its severer forms the condition commonly called gastro-enteritis, accompanied as it is by dehydration and frequently also by acidosis and the resultant symptoms of these, still remains a menace to infants. Much that is known about it concerns the effect on metabolism of water loss from the body and the consequences of the so-called toxic state to which the patient often eventually succumbs. The etiologic factors at work in the initiation of the gastro-intestinal upset are not so clear. It seems evident that no one cause or theory of causation is sufficient in itself. Certain individual cases and epidemics quite certainly depend on bacterial infection with such micro-organisms as the dysentery bacillus; others are definitely linked with irritative or mechanical factors such as the ingestion of indigestible or decomposed food; others still are apparently caused by the elimination of toxic substances produced in the body. Acting also, but probably in a secondary way, are heat and humidity with their effects in favoring bacterial growth in milk and other foods and in what may vaguely be stated as the lowering of bodily resistance.

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* From the Pediatric Research Foundation of the Children's Hospital of Cincinnati and the Departments of Pediatrics and Otology of the Cincinnati General Hospital and the University of Cincinnati College of Medicine.

One form of gastro-intestinal disturbance which is well defined clinically is that associated with parenteral infection. Indeed, many severe febrile diseases in infants and children have as part of their symptomatology vomiting and some degree of diarrhea. Especially is this true of respiratory infections. In recent years there has been the attempt to link more closely in an etiologic way gastro-enteritis and infection in the middle ear, and the impression has been created that many of the cases of summer diarrhea are secondary to otitis media and mastoiditis.

It was particularly Marriott [1] who brought this matter to the attention of pediatricians. A number of other references to this subject may be found in the literature. All physicians will admit the clinical association between parenteral infection and intestinal disturbance, but many have not accepted the hypothesis that a large number of cases of gastro-enteritis are caused by middle ear infection.

Several questions present themselves, answers to which might clarify the problem: (*a*) What is the seasonal incidence of diarrheal diseases as compared with respiratory diseases, especially otitis media and mastoiditis? (*b*) What is the percentage incidence of gastro-enteritis in cases of otitis media and mastoiditis? (*c*) What is the percentage incidence of otitis media and mastoiditis in cases of diarrheal disease? (*d*) What is the correlation between otitis media and gastro-enteritis?

COMPARISON OF THE SEASONAL INCIDENCE OF OTITIS MEDIA AND ENTERITIS

It is hardly necessary to present any great mass of statistical evidence to demonstrate that diarrheal disease is more frequent at a season of the year during which respiratory disease is less likely to be prevalent, and vice versa. The very term "summer diarrhea," which is often applied to the clinical syndrome under consideration, is in itself an indication of its seasonal incidence. During the twenty-four months from July 1, 1926, to July 1, 1928, 169 infants [2] with severe gastro-enteritis were admitted to our wards. One hundred and thirty-one (77.5 per cent) of these were admitted during the months from July 1 to November 1; that is, during the hot season of the year. On the other hand, of 226 infants with acute purulent otitis media seen during the same period, only seventy-two (about 30 per cent) were admitted during the months of July to October, inclusive. Acute nasal infections follow the same seasonal incidence. Forty infants who had gastro-enteritis and a coincident otitis media were studied by Dr. Edward King. In all of them there was evidence of nasal infection and in many the character of the exudate present and the result of nasal washings suggested distinct nasal sinus infection. Of eleven instances in which roentgenograms of the sinuses were taken, only one showed a degree of cloudiness that could be called positive. Otitis media and mastoiditis are indeed but part of the respiratory tract infection and, except for the very rare endogenous mastoid infections, we might coin the axiom, "No nasal infection, no mastoid infection." Definite bronchitis or bronchopneumonia occurred in twenty-six (12.4 per cent) of our 209 cases of gastro-enteritis, the number being divided between those with otitis media (fifteen cases) and those without (eleven cases).

INCIDENCE OF GASTRO-ENTERITIS IN CASES OF OTITIS MEDIA

While it is true that many respiratory infections have an accompanying diarrhea, it does not follow that in all cases of otitis media there is definite gastro-enteritis. To obtain some idea of the matter we have studied the histories and records of infants who were admitted to our wards with a primary diagnosis of otitis media. That is to say, these cases do not coincide with our 209 cases of gastro-enteritis in which we found otitis media on admission to the hospital, or in which it subsequently developed.

In 232 consecutive cases, then, of frank otitis media in infants whom we have had under personal observation during a period of two years there were fifty-eight cases (20 per cent) in which a subsequent gastro-enteritis developed.[3] At least these figures demonstrate that gastro-enteritis is not a constant accompaniment of otitis media.

INCIDENCE OF OTITIS MEDIA IN CASES OF GASTRO-ENTERITIS

Since our interest has been aroused in this subject, the ears of the infants with gastro-enteritis have been under constant observation not only by the pediatrician but, in almost all of the cases, by the otologist. The careful study by the latter should obviate the criticism that otitis media was present but not recognized. In order to be sure of our ground we opened quite a few tympanic membranes which gave such slight indication of underlying pathologic conditions that formerly we would have considered them normal. Almost invariably under these conditions pus was not obtained. We may say that of 209 cases of definite gastro-enteritis seen from July 1, 1926, to Nov. 1, 1928, in practically all of which the otologist was observing the ears, seventy-seven (36.8 per cent) showed evidence of purulent middle ear disease. It will be shown later that many of these patients did not have otitis media at the onset of the intestinal disease.

CORRELATION OF OTITIS MEDIA AND GASTRO-ENTERITIS

In studying the correlation between otitis media and gastro-enteritis, one must be sure of cause and effect. The fact that middle ear infection or mastoiditis exists in a patient at the same time as gastro-enteritis does not necessarily mean that the gastro-enteritis is a result of the respiratory infection. There are indeed four possibilities; namely, that (*a*) gastro-intestinal symptoms are caused by the otitis media; (*b*) the otitis media is caused by the gastro-enteritis; (*c*) the two result from the same cause, or (*d*) they are independent infections.

Is Gastro-Enteritis Caused by Otitis Media and Mastoiditis?

Many clinicians who have performed myringotomy and mastoid drainage in infants with gastro-enteritis have been impressed with the improvement in the intestinal symptoms and in the general symptoms of dehydration and the like. It is important to remember that the fact that improvement follows the drainage of pus from the middle ear or mastoid antrum does not establish any etiologic relation to gastro-enteritis. One might naturally expect a fall in temperature and an

1. Marriott: Tr. Am. Pediat. Soc. **37**: 38, 1925.
2. Our study as presented has been confined to infants under 2 years of age. The total number of cases of gastro-enteritis analyzed is 209 because the observations extended to Nov. 1, 1928.
3. Our criteria for the diagnosis of gastro-enteritis were the usual ones employed. In addition to the general symptoms no case was so designated unless there was present a persistence for several days of at least five stools of abnormal character in the twenty-four hours.

amelioration in general symptoms after such a procedure whether or not the patient has intestinal disease. As our figures demonstrate, a certain number of patients with gastro-intestinal symptoms have otitis media. We have not been impressed, however, with the improvement in intestinal symptoms after myringotomy. In sixteen patients we have performed a double mastoid antrotomy; four of these died within a few days after operation and four after a stormy postoperative course. One other patient whose mastoid wounds had healed and who had been discharged from the hospital returned two weeks later with a recurrence of the gastro-enteritis, to which he quickly succumbed. The mortality, then, in these operative cases was 50 per cent. While it is difficult to demonstrate in a statistical way, we gained a distinct clinical impression that no immediate decided improvement followed the operation in the majority of these cases—certainly no more than might be expected from the free drainage of pus from any part of the body. We have had to fight just as hard to save our patients and to treat them just as vigorously by fluid injections and transfusions after, as before, operation. It is in this manner, however, that the efficacy of treatment must be judged to a certain extent. For example, we had the interesting experience of observing twins who had quite comparably severe cases of gastro-enteritis complicated by otitis media. The one on whom bilateral mastoid antrotomy was performed had a much stormier course than his brother, who was not operated on. It may be stated here that we have operated on three infants suffering from severe gastro-enteritis and have found the mastoid antrum free from pus and culturally negative. Furthermore, in infants dying from gastro-enteritis the mastoid region may be normal at necropsy and cultures from it sterile. We have noted this on two occasions.

That our experience with mastoidectomy is not unique is evidenced by the report of the Dicks and Williams,[4] in which it is noted that surgical drainage of the mastoid did not affect the course of the disease as compared with the cases in which operation was not done. In fact, all five of the infants on whom the operation was performed died. The mortality was 90 per cent in Renaud's [5] first ten cases of mastoidectomy in enteritis, although he states that his patients were dying when the operation was performed. Others, such as Alden and Lyman,[6] also had a high mortality, losing seven out of fifteen patients. Dixon [7] too is convinced that his study shows that the mortality rate in infants with gastro-enteritis in whom mastoidectomy has been performed is out of proportion to the usual mortality rate.

The mortality in the entire group of 209 cases of gastro-enteritis was 34.4 per cent (seventy-two deaths). Of the seventy-two deaths, twenty-three (32 per cent) occurred in infants with a complicating otitis media, the other forty-nine deaths being in infants without discoverable evidence of middle ear infection. To put this in another way: Of seventy-seven infants with gastro-enteritis who had otitis media, twenty-three (30 per cent) died; of 132 infants with gastro-enteritis but without otitis media, forty-nine (37 per cent) died. That is to say, in this series otitis media complicating gastro-enteritis certainly did not seem to increase the severity of the latter.

Our experience with mastoid antrotomy had led us to think seriously about the indications for mastoid drainage in these infants. The operations as we have done them have been performed later in the course of the disease than Marriott and others have advised, and our results are therefore not strictly comparable to theirs. It was usually only after other methods of treatment, such as parenteral injections of fluid and transfusions, seemed to be without avail that the mastoids were opened. Obviously, if the operation of simple mastoid antrotomy is performed early and under local anesthesia, and it is done in practically every infant presenting gastro-intestinal symptoms, the effect of the operation itself will be difficult to interpret. In deciding on operation, roentgenograms of the mastoid regions taken in a number of the cases were of no help—in fifteen cases they were negative; in two other cases there was some haziness in the mastoid region, but it so happens that operation in these cases was refused and the infants subsequently recovered.

The indications for myringotomy in the presence of gastro-enteritis are determined somewhat by the severity of the infant's gastro-intestinal symptoms in severe gastro-enteritis. Whenever one becomes suspicious of the presence of pus in the middle ear, one is warranted in performing myringotomy if only for diagnosis. In the absence of pus, the myringotomy opening, if properly made, will promptly close and no harm results. However, this must not be interpreted as an advocation of indiscriminate opening of the primary tympanic membrane in all cases. Many infants will have tympanic membranes without obvious changes from the normal color and position. If this is the case, and the infant is convalescent or only slightly ill, we consider it good judgment not to perform myringotomy. If, however, the infant is very sick and the trend of the condition is not toward recovery, and there is present the least change suggestive of middle ear involvement, we believe that diagnostic myringotomy is indicated.

When myringotomy is performed, an important distinction to bear in mind is the difference between a dry tympanum and a tympanic cavity which, when opened, does not drain. This can be determined only by careful inspection of the myringotomy opening at the moment the knife enters the tympanic membrane, and afterward (if one is still in doubt), by gently lifting up, with the knife blade, one or the other cut edge of the membrane. Ordinarily there is at that moment a revealing flow of fluid through the cut which settles the question as to whether the tympanum is wet or dry. If myringotomy is not followed by drainage of pus and the myringotomy wound closes promptly, this does not necessarily mean that there is no pus in the middle ear cavity. The viscosity of the pus may be so great and it may be under so little pressure that it fails to drain. As previously mentioned, the presence of such a condition is best determined at the very moment of myringotomy.

Fortunately, the greater number of middle ears containing pus begin to drain soon after myringotomy if some drainage has not already been established through spontaneous rupture of the tympanic membrane. In all middle ears containing pus the condition is necessarily accompanied by some purulent involvement of the mastoid antrum because of the intimate continuity of their tissues. In those cases presenting profuse

4. Dick, G. F.; Dick, Gladys, H., and Williams, J. L.: The Etiology of an Epidemic of Enteritis Associated with Mastoiditis in Infants, Am. J. Dis. Child. **35**: 955 (June) 1928.

5. Renaud, M.: Bull. et. mém. Soc. méd. d. hôp de Paris **45**: 1326 (Oct. 14), 1352 (Oct. 21), 1384 (Oct. 28) 1921, quoted by Dixon (footnote 7).

6. Alden, A. M., and Lyman, H. W.: Laryngoscope **35**: 586 (Aug.) 1925.

7. Dixon, O. J.: Causes of Death in Mastoiditis, J. A. M. A. **91**: 1280 (Oct. 27) 1928.

purulent drainage, one can be almost certain that a fair portion of the pus drainage is from the mastoid antrum and that operative inspection of the mastoid antrum would disclose the cavity definitely filled with pus.

Indications for mastoid antrotomy must, in some measure, therefore, center about the question of pus in the middle ear. When diagnostic myringotomy reveals that the tympanum is dry, there is almost certainly no pus in the mastoid antrum. In this group of cases mastoid antrotomy is certainly not indicated. When diagnostic myringotomy has revealed the presence of pus in the middle ear, or when there has already been established definite middle ear drainage, it can be taken for granted that there must be pus in the mastoid antrum.

At this time we do not wish to consider the problem strictly from the standpoint of the otologist. While we must not overlook the consideration of the child's hearing, the possible establishment of chronic middle ear and mastoid infection, and the impending ruin of the tympanic membrane from a long continued purulent discharge, the matters of paramount importance are those which chiefly concern the pediatrician. Simply stated, the pediatrician may well inquire of the otologist whether there is pus in the mastoid antrum. If the otologist says that there is pus present, then it devolves on the pediatrician to say whether or not he wishes it removed.

The ability to assume this responsibility rests, in part at least, on the pediatrician's comprehension of the operative procedure. He must realize that the operation of bilateral antrotomy is not a prolonged or difficult one. In competent hands it can be completed in comparatively short time, under local anesthesia, and it is not accompanied by any considerable surgical shock. The pediatrician must also know that the operation is not at once followed by the relief of all symptoms and that his labors are not at an end. He must be aware that there is to ensue, following the operation, a period of his greatest activity. Also he must appreciate that it is within the province of the otologist to refuse operation on patients obviously moribund, and that when operation is considered it must come at a time when there is still some assurance of a successful outcome. Marriott may well be quoted when he says, "It must be recognized that this operation will not bring the dead to life."

The sagging of the posterior superior canal wall, which to some otologists is a symptom of active antral suppuration, with possible retention, is, of course, a symptom having some bearing on the urgency of the drainage of the mastoid antrum by operative means. To the otologist this sagging of the posterior superior canal wall may have value as indicating the intensity of the suppurative process taking place in the mastoid antrum. Even when the gastro-enteritis is improving, such a symptom may still warrant the otologist in making the point that this antrum should be drained. This is based purely on otologic considerations. When the gastro-enteritis remains the outstanding condition to be dealt with, it is then the responsibility of the pediatrician to say whether he does or does not wish the pus in the mastoid antrum removed.

Are Otitis Media and Mastoiditis Caused by Gastro-Enteritis?

It is difficult to understand how infection in the mastoid region, particularly when it involves both mastoids, could result from a general blood stream infection. One would have to assume that there is present an endogenous mastoid infection. This is known to be an extremely rare condition, and a bilateral endogenous mastoid infection is even more so. As we have previously stated, there can hardly be middle ear and mastoid infection without nasal infection. In a certain number of cases of our own and in those reported by Hartmann,[8] by the Dicks and Williams [4] and by others, colon bacilli are found in the ear cultures and in the mastoid exudate as well as in the blood stream. Whether these facts argue for an endogenous mastoid infection the primary focus of which is in the intestinal tract is, according to our opinion, problematic. The Dicks and Williams suggest that, in the epidemic they studied, the mastoiditis was secondary to intestinal infection which gave rise to a blood stream infection. The evidence they present does not seem conclusive to us. Certainly the usual middle ear and mastoid infection occurs as a consequence of nasal and throat infection. Would it not be more reasonable to think that the colon bacilli entered the middle ear through the eustachian tube rather than by the blood stream? With the depression of gastric and duodenal secretions that occurs in gastro-enteritis, colon bacilli enter the region of the upper intestinal tract and may readily be present in vomitus.

That otitis media and mastoiditis may be an indirect consequence of gastro-enteritis is suggested by the observation that we have, in many instances, seen middle ear infection develop several days after the onset of the intestinal upset and this in infants whose ears were under daily study during the entire course of their hospitalization. Of the 209 infants with gastro-enteritis there were seventy-seven who had otitis media. Of these seventy-seven infants, thirty (39 per cent) developed otitis media while under our observation and after the onset of gastro-enteritis. If all of the seventy-seven infants had been under observation from the onset of their illness, it seems quite obvious that the number developing otitis media after gastro-enteritis was established would have been greater.

Bacteriology of Gastro-Enteritis and Middle Ear Infection

We were interested in any possible bacterial correlation between gastro-enteritis and middle ear infection. A similarity of bacterial flora is not, of course, necessary to explain the symptomatology present. It might be, as has been postulated by Marriott and others, that infection in the upper respiratory tract causes intestinal symptoms, dehydration and its consequences by absorption of toxic products.

From the mastoid region at operation, cultures made by Alden and others demonstrated that hemolytic streptococci are frequently found.

In taking cultures from the ears in our cases the canal was first cleansed with alcohol and, following paracentesis, the pus was taken on a sterile swab and immediately inoculated on blood agar, dextrose ascites agar and dextrose ascites broth. In each case cultures were made aerobically and anaerobically and at partial tension, an attached tube inoculated with *Bacillus subtilis* being used to take up part of the available oxygen. For the stool cultures fresh specimens were secured and portions were emulsified in broth from which the

8. Hartmann, A. F.: Chemical Changes Occurring in Body as a Result of Certain Diseases: Effects of Diarrhea, Vomiting, Dehydration and Oliguria on Acid-Base Balance of Plasma of Infants with Mastoiditis, Am. J. Dis. Child. 35: 557 (April) 1928.

mediums were inoculated and plates were streaked. Ear cultures were made in forty-five cases, mastoid cultures in ten (five cases) and stool cultures in thirty-two.

The stool cultures did not show anything remarkable except in a few cases in which intestinal pathogens were recovered and in which they were possibly causing the diarrhea. A study of a number of cases in which bacteria of the upper intestinal tract could be compared with those in middle ear and throat cultures might be of some significance, especially if this could be done during life. We hope to be able to report further on this matter at a later date. It was notable that the presence of hemolytic streptococci in ear and stool cultures as well as in mastoid cultures was seldom demonstrated in our cases. Perhaps this whole situation may be dismissed with the remark that there was no convincing correlation between the bacterial flora in the ears and mastoids and in the stools in the cases which we have studied. If there had been a similarity between the micro-organisms found in the three locations, a further discussion might be indicated. The absence of correlation, of course, means little in view of the usual fate of micro-organisms during their passage through the intestinal tract.

Are Gastro-Enteritis and Middle Ear Disease the Result of the Same Cause?

We have already stated our disbelief in the probability of a blood stream infection causing a bilateral endogenous mastoid infection. On the other hand, it might be possible that a respiratory infection could be the common cause of intestinal disease and of otitis media and a subsequent mastoiditis. What seems at least possible in some cases is that the lowered resistance consequent on gastro-enteritis allows the development of otitis media and mastoiditis. In support of this is the type of micro-organisms found in the ears and mastoids in our studies. They were usually the common inhabitants of the nose and throat which might have become pathogenic under the conditions present. A further confirmatory fact in favor of this view we have already stated; namely, the development of middle ear infection after the onset of the gastro-enteritis.

Are Gastro-Enteritis and Middle Ear Infection Independent Conditions?

Most of the studies made of this subject have been in hospital patients. The spread of respiratory disease is certainly favored by conditions that group infants together unless physical equipment and organization take this factor into account. It may be possible that some of the cases of middle ear infection in infants with gastro-enteritis are secondary and independent infections. It would be interesting to have a statistical comparison made of the incidence of middle ear infection in the cases of gastro-enteritis in hospital patients and in private practice.

CONCLUSIONS

A study of gastro-enteritis in infants under 2 years of age and its relation to otitis media has been carried out over a period of two years in Cincinnati. Collaborating in this study were otologists, bacteriologists and pediatricians. There are several actual and contributory causes of gastro-enteritis. No one cause seems sufficient in itself to explain in an etiologic way all cases that are ordinarily classified as gastro-enteritis.

The majority of infants in this study suffering from gastro-enteritis did not have middle ear infection preceding the gastro-intestinal symptoms.

In comparing the seasonal incidence of gastro-enteritis and of otitis media and respiratory infections in general, it seemed evident that gastro-enteritis was a condition occurring at a season of the year (July, August, September and October) when otitis media was not so prevalent. However, a surprising number of cases of otitis media occurred during these months in infants. The majority of infants suffering from otitis media and brought for admission to the hospital primarily for that condition did not have, and did not develop, gastro-enteritis.

In those cases in which otitis media occurs in infants suffering from gastro-enteritis, we have suggested that there might be four possible explanations: (*a*) The gastro-enteritis might be caused by middle ear infection; (*b*) the middle ear infection might be caused by the gastro-enteritis; (*c*) gastro-enteritis and middle ear infection might result from the same cause, or (*d*) gastro-enteritis and middle ear infection might be independent but coexisting infections. While we do not wish to make a definite statement concerning this matter, we have brought out certain clinical studies, bacterial investigations and theoretical considerations which would indicate that no one of these situations mentioned is the only possible explanation in every case.

Drainage of pus from the middle ear and mastoids had little, if any, more effect than might be expected on the general symptoms of fever and toxicity and seldom any effect on clearing up gastro-intestinal symptoms.

Otitis media and mastoiditis occurring in an infant with gastro-enteritis of increasing severity should be treated by drainage of the mastoid antrum, even though no immediate effect on the gastro-intestinal symptoms is to be expected.

We believe that, when mastoid antrotomy is properly performed on infants who have severe gastro-enteritis, the factor of operation does not materially increase the mortality risk.

Pyuria.—One of the most troublesome diseases found in childhood and the most amenable to treatment is pyuria. Pus in the urine may result, as in the adult, from infection anywhere along the entire urinary tract. There is a tendency to designate and treat all cases of pus in the urine as pyelitis, forgetting the urethra, bladder and ureters as possible and frequent locations of the disease. Urethritis is occasionally met with both in the male and female child, and may be due to the staphylococcus, to a diphtheroid type of bacillus, or to the gonococcus. Simple urethritis is more frequently seen in children with poor hygienic surroundings, and improvement in the child's general health, plus thorough cleanliness, usually is sufficient to clear up the disease. Children not infrequently contract gonorrheal infection from older relatives or from servants, and require about the same treatment as adults. Cystitis in children is probably much more frequently seen than true pyelitis. Investigators have shown that only about 50 per cent of pronounced infections of the bladder also involve the upper urinary tract. Pyelitis in children may be an ascending infection or may result from infection from the blood stream. It is found that girls are much more prone to pyelitis than boys, while the disease is many times more fatal in boys than in girls. This is probably due to the fact that girls are much more subject to the ascending type of infection, which is usually colon in character and much milder than the type of pyelitis which is contracted through the blood stream and is more frequently due to some type of coccus.—Dodson, A. I.: The Urologic Problems of Childhood, *Virginia M. Monthly*, December, 1928.

A NUTRITIONAL DISTURBANCE IN ADULTS RESEMBLING CELIAC DISEASE AND SPRUE

EMACIATION, ANEMIA, TETANY, CHRONIC DIARRHEA AND MALABSORPTION OF FAT *

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As a general rule, organic disease of the gastrointestinal tract is today readily recognized and correctly appraised. The present state of our knowledge, however, does not permit an equal degree of precision in the recognition of functional disorders of digestion and absorption. For this reason we report a group of cases in which there existed a clinical state which we either had not seen or had failed to recognize before. The observations consisted of an extreme degree of emaciation, of severe anemia of the macrocytic type, of a low blood calcium with its associated sensory and motor phenomena, and of fatty diarrhea—all, apparently, the result of malabsorption of food and possibly also of minerals.

The proper classification of these cases aroused considerable interest. For want of a better term we chose to classify them as nontropical sprue. They might have been classified with equal justification as chronic digestive insufficiency of adults or as celiac disease of adults. Because of their very close resemblance to tropical sprue, one of us (W. H. H.) visited San Juan, Porto Rico, where, through the courtesy of Dr. Bailey K. Ashford, a group of cases of tropical sprue in various stages of development and regression were made available for clinical study. The symptoms and signs which we have observed in our own cases are, with one or two minor exceptions, similar to those which lead, in the tropics, to a diagnosis of tropical sprue by an experienced student of tropical diseases. In tropical sprue a low blood calcium and signs of tetany are observed but apparently neither so frequently nor in such a severe form as occurred in some of our cases. *Monilia psilosis* has been found in the stools in tropical cases by many observers but it was not present in our group.

Sprue has been reported from the southern United States by Graham,[1] Harris,[2] Wood,[3] Musser [4] and Silverman.[5] Lambright [6] has reported a case originating in Ohio. Thaysen [7] reported four cases originating in Denmark and quoted Mense, Talma and Schaffer as each having seen cases. Cases presenting symptoms similar to ours but with a fatal outcome have been reported under various titles by others. In 1907, Whipple [8] reported as a hitherto undescribed disease the case of a medical missionary suffering from arthritis, who, on returning from Turkey, developed a condition characterized by progressive emaciation, abdominal swelling and tenderness, and stools which indicated permanent interference with fat absorption without deficiency in fat splitting. The symptoms were attributed to mesenteric tuberculosis but the necropsy did not reveal any signs of tuberculosis. The most striking finding was an unusual deposition of fat and fatty acids in the intestinal and lymphatic tissues. Sprue was not considered. Munford [9] has reported three cases of atypical anemia, in one of which the resemblance to the clinical state called sprue was very striking. Blumgart [10] has reported three fatal adult cases of malabsorption of fat, with emaciation and anemia, and in two acidosis and tetany. In one of his cases, in which a diagnosis of sprue had been made elsewhere, roentgen examination revealed a distended colon, a condition that has been present in all of our cases. The other physical and laboratory observations were also similar to those observed by us. In the three necropsies in Blumgart's cases, the significant pathologic changes were confined to the intestine and to the mesenteric lymph nodes. The small intestine showed small granular elevations of the mucosa, usually gray in appearance. On microscopic examination these elevations were found to consist of phagocytes containing ingested fat. The mesenteric lymph nodes were enlarged and contained similar phagocytes.

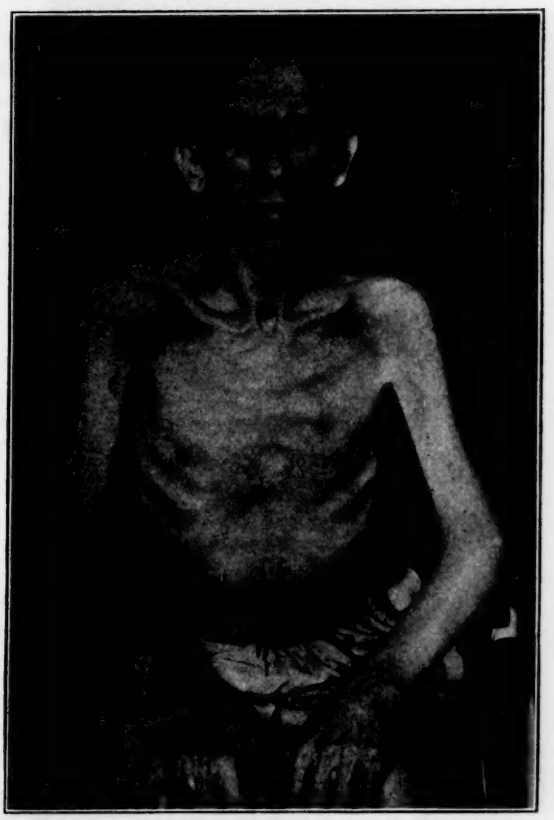


Fig. 1.—Appearance of patient 2 two weeks after improvement had begun.

Undoubtedly in many instances, particularly in the temperate zone, the symptoms of the sprue syndrome have been mistakenly attributed to pancreatic disease,

* Read before the Chicago Society of Internal Medicine, April 23, 1928.

* From the Department of Medicine, Northwestern University Medical School, and the Medical Service of Wesley Memorial Hospital.

1. Graham, St. J. B.: Sprue: A Synopsis with Report of Cases, Georgia Pract. **2**: 227, 1905.
2. Harris, H. F., quoted by Wood, E. J.: The Occurrence of Sprue in the United States, Am. J. M. Sc. **150**: 692, 1915.
3. Wood, E. J.: The Recognition of Tropical Sprue in the United States, J. A. M. A. **73**: 165 (July 19) 1919.
4. Musser, J. H.: Clinical Manifestations of Sprue and Relation of the Disease to Pernicious Anemia, M. Clin. North America **9**: 895 (Jan.) 1926.
5. Silverman, D. N.: Sprue: Extended Studies with Especial Reference to Pancreatic Digestion, South. M. J. **20**: 762 (Oct.) 1927.
6. Lambright, G. L.: Sprue in the Temperate Zone, Am. J. M. Sc. **171**: 515 (April) 1926.
7. Thaysen, T. E.: Die nichttropische Sprue, Klin. Wchnschr. **5**: 2168 (Nov. 12) 1926.
8. Whipple, G. H.: A Hitherto Undescribed Disease Characterized Anatomically by Deposits of Fat and Fatty Acids in the Intestinal Lymphatic Tissues, Bull. Johns Hopkins Hosp. **18**: 382, 1907.
9. Munford, S. A.: Atypical Anemias, Clifton M. Bull. **2**: 139, 1925.
10. Blumgart, H. L.: Three Fatal Cases of Malabsorption of Fat with Emaciation and Anemia, and in Two Acidosis and Tetany, Arch. Int. Med. **32**: 113 (July) 1923.

pernicious anemia, tuberculosis of the mesenteric and suprarenal glands, pellagra or malignant growths.

In a discussion of the fatty stools seen in pancreatic disease, Richard Bright [11] mentions two cases which were probably cases of sprue. In 1888, Gee [12] wrote, "Sometimes from India Englishmen return sick with the coeliac affection; seldom is it met with in adults who have never left our island." The resemblance of sprue to celiac disease of children has often been commented on. Reginald Miller [13] believes that celiac disease and sprue are different conditions, because the former originates in childhood, is seldom fatal, and does not occur in epidemics. In a later article he [14] said that sprue is so rare in children as to be unmentioned if not unknown. Ashford,[15] however, has undoubted records of sprue in

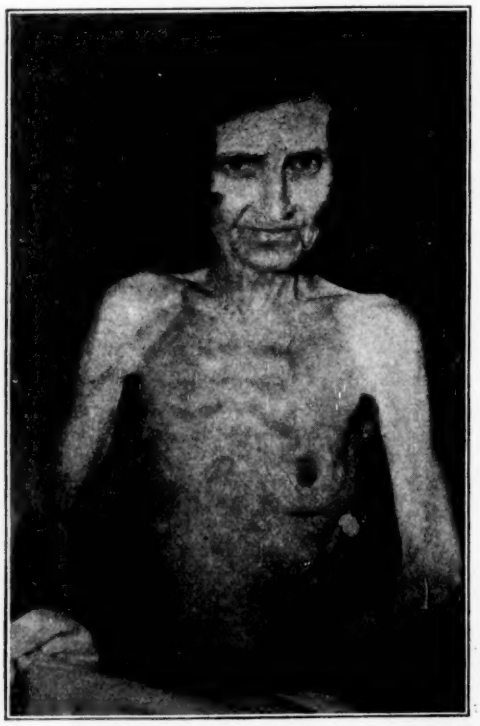


Fig. 2.—Appearance of patient 3 after weight had increased to 65 pounds (29.5 Kg.).

children, and Johnson and Breidigain [16] have reported the case of a child, aged 6, who acquired sprue in India. Sprue is a common disease in certain parts of the tropics but it is a mistake to refer to it as an epidemic disease. Celiac disease may be fatal, and Miller [17] himself has reported such a case. Whether celiac disease and sprue are identical conditions has not been determined. They are at least very similar in symptomatology and in their physical characteristics. Cases of infantilism due to malabsorption of fat have been described by Ryle [18] and Bramwell.[19] Bramwell attributed the fatty diarrhea to pancreatic insufficiency because the amount of fat in the stools became very much less after the administration of pancreatic ferments. Emaciation, anemia and malabsorption of fat, therefore, may occur at any age, in any climate and in either sex, as the result of gross organic disease of the viscera and in the absence of recognizable organic change.

The major signs of sprue consist of glossitis; secretory and motor disturbances of the stomach and intestine; a lowered capacity for the absorption of food, particularly of fat; a characteristic type of diarrhea; progressive emaciation; a macrocytic type of anemia; an afebrile course; a lowered rate of metabolism, and a disturbance in calcium balance, which in advanced cases leads to the appearance of signs of tetany.

REPORT OF CASES

CASE 1.—Miss B. B., aged 45, white, of American birth, was admitted to Wesley Memorial Hospital, Oct. 23, 1926, because of pain in the hips, lumbar pain, progressive loss of weight, and diarrhea. She was a resident of Chicago, but had lived for short periods in Florida and had visited the West Indies on several occasions between 1909 and 1923. Her illness of three years' duration began with pains in all the large joints. About eighteen months later she began to lose weight slowly but steadily. Her height was 58 inches (147 cm.) and her usual weight 96 pounds (43.5 Kg.). A loss of 31 pounds (14 Kg.) was associated with night sweats, marked weakness, twitching of the eyelids, lips and nostrils; stiffening and cramping of the fingers, and a change in the color of the skin from normal flesh to a muddy green. Three weeks prior to her admission the patient began to pass copious soft stools from six to nine times each night. During her illness there had not been any cough, fever, nausea, vomiting or hemoptysis. Before entering Wesley Memorial Hospital she had been treated elsewhere for arthritis by medication, dietary control and the application of a plaster body cast.

At the time of examination, the patient was greatly emaciated, having lost 33 per cent of her normal weight. The skin was dry and harsh to the touch and showed a distinct diffuse brownish pigmentation. The head and neck were normal. The heart and the lungs were normal. Clinical examination was confirmed by roentgen examination. The abdomen was markedly distended and tympanitic. There was no tenderness or rigidity. The liver and spleen were just palpable. The colon was palpable but not tender. A roentgenologic examination of the gastro-intestinal tract showed the stomach to be small with vigorous peristalsis. It was empty in five hours. The colon was large and redundant. There were no other evidences of disease. The extremities were normal except for the emaciation which they shared with the rest of the body. The tendon and superficial reflexes were normal. A roentgenographic study of the bones showed a distinct decrease in density.

Laboratory analysis showed that the urine was normal. The phenolsulphonphthalein output was 24 per cent in one hour. The blood urea and blood sugar were normal. The free hydrochloric acid in the gastric contents at the end of one hour was 34 degrees; the total, 41 degrees. The stools were examined frequently for parasites and ova with negative results. They were repeatedly recorded as being large, liquid or semisolid, clay colored stools containing undigested food. The red cell count was 3,460,000; the hemoglobin, 50 per cent; the color index, 0.73, and the leukocytes, 5,100, of which 84 per cent were neutrophils, 12 per cent lymphocytes and 4 per cent large mononuclear cells. Nucleated red cells were not found. The Wassermann reaction was negative. The basal metabolic rate calculated for an adult of 50 pounds (23 Kg.) was plus 8.6.

Because of the asthenia, anemia, diarrhea, hypotension and pigmentation of the skin a diagnosis of Addison's disease was considered, although the observations were not typical and no definite signs of tuberculosis were discovered. The further course of the disease made a diagnosis of Addison's disease untenable.

After her admission to the hospital, the patient continued to lose weight. December 9, her weight was 48½ pounds

11. Bright, Richard: Cases and Observations Connected with Disease of the Pancreas and Duodenum, Tr. Med.-Chir. Soc. Edinburgh **18**: 1, 1833.
12. Gee, Samuel: On the Coeliac Affection: St. Bartholomew's Hosp. Rep. **24**: 17, 1888.
13. Miller, Reginald: Sprue and Celiac Disease, Brit. M. J. **2**: 1159, 1923.
14. Miller, Reginald: Celiac Disease: Its Definition and Diagnosis, Lancet **1**: 330 (Feb. 13) 1926.
15. Ashford, B. K.: Personal communication to the authors.
16. Johnson, G., and Breidigain, F. T.: Tropical Sprue in a Child Six Years of Age, Am. J. M. Sc. **170**: 364 (Sept.) 1925.
17. Miller, Reginald: A Fatal Case of Celiac Infantilism, Lancet **1**: 743 (April 9) 1921.
18. Ryle, J. A.: Fatty Stools from Obstructions of the Lacteals, with a Note on the Coeliac Affection, Guy's Hosp. Rep. **74**: 1 (Jan.) 1924.
19. Bramwell, B.: Pancreatic Infantilism, Tr. Med.-Chir. Soc. Edinburgh **23**: 162, 1904.

(22 Kg.), so that her appearance was that of a mummy. She passed nine or ten soft stools nightly. She developed severe attacks of carpopedal spasm with positive Chvostek and Trousseau signs, at which time the blood calcium was 7.55 mg. per hundred cubic centimeters of serum. Cod liver oil and calcium lactate were administered, but although the blood calcium had increased to 9.66 mg., January 6, the tetany was not controlled. She was then given 10 units of parathyroid extract-Collip daily and the calcium lactate was continued. Thereafter her improvement was rapid. The attacks of tetany ceased; her appetite returned; she gained in strength, and the stools became more nearly normal and were less frequent. After January 16 there were never more than three stools in twenty-four hours. She was discharged, January 20, practically without articular pain. Her weight had increased to 65 pounds (29.5 Kg.) and the diarrhea was under control.

The patient was admitted to the Newton Memorial Hospital at Cassadaga, N. Y., Sept. 14, 1927. In January, 1928, Dr. W. L. Rathbun forwarded the results of a careful physical and roentgen examination with numerous laboratory tests which did not reveal any evidence of tuberculosis or other definite organic disease. The hemoglobin at that time was 85 per cent. In April, 1928, Dr. Rathbun reported that the patient's weight had increased to 82 pounds (37 Kg.), and that digestion and bowel action gave no cause for complaint.

CASE 2.—A. P., a white man, aged 34, of Spanish nativity, was admitted to Wesley Memorial Hospital, Oct. 19, 1926, because of epigastric pain, bloating and belching after meals, anorexia, regurgitation of irritating acid gastric contents, loss of weight and diarrhea. He had been a resident of Chicago for two years. He had previously resided in Cuba for twelve years, where he had been employed as a butler. His health had been good. He came to Chicago hoping to secure similar employment but was forced to accept work as a laborer. During his first year here his health was perfect. During his second year he began to lose weight and strength. He was admitted to the Cook County Hospital in June, 1926, and to the Presbyterian Hospital, July 3, 1926. In the latter hospital the stools were found to contain considerable fat but no ova or parasites. The gastric contents showed a normal acidity. The blood showed a macrocytic anemia. The red cell count was 1,790,000; the hemoglobin, 54 per cent; the color index, 1.5, and the white cell count 5,950. In both institutions the condition was regarded as a primary anemia.

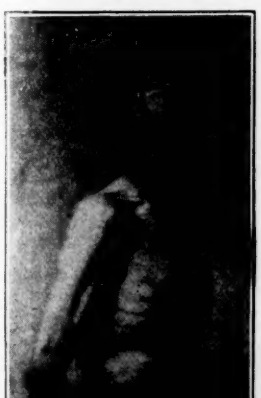


Fig. 3.—Distention of abdomen and emaciation in patient 5.

At the time of examination the patient appeared greatly emaciated. The skin showed a peculiar yellowish pallor but the sclera lacked the icteric tint seen in pernicious anemia. The tongue was eroded and the tip was very red and tender. The heart, lungs and genitalia were normal. The abdomen was distended and there was slight tenderness in the epigastrium. No masses or organs could be felt. A roentgenologic study of the gastrointestinal tract showed nothing of interest aside from an enormously dilated colon, which did not fill completely with a 5 quart barium enemia. Although he complained of acral paresthesia, no abnormal neurologic signs were found. The temperature was normal.

On laboratory analysis the red cells numbered 2,440,000 and showed a marked variation in size and shape, with a predominance of macrocytes. No nucleated red cells were found. The hemoglobin was 50 per cent, and the color index 1 plus; the white cells numbered 6,200 with a normal relationship. Malarial parasites were not found. The Wassermann reaction was negative. The urine was normal. The gastric contents showed a normal acidity. Ferments in the gastric contents were normally active and starch splitting ferments were present in the stools. The stools contained undigested food. Fat was especially abundant. Numerous examinations of the stools showed an absence of parasites and ova but on two occasions following treatment with thymol the ova of *Uncinaria* were reported. No worms were found at any time. Cultures of the stools for *Monilia psilosis* were negative.

Because of the normal gastric function and the entire absence of objective signs of posterolateral sclerosis, the diagnosis of pernicious anemia made elsewhere was rejected despite the classic blood picture. Although examinations of the stools for parasites were negative, the patient was given three courses of treatment with thymol without results. The absence of signs of organic disease of the viscera and the presence of a severe anemia with malabsorption of fat led to the diagnosis of nontropical sprue.

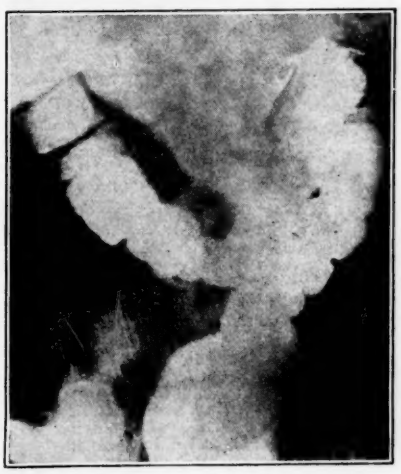


Fig. 4.—Megacolon in case 2.

The stools were light colored, gassy, bulky and soft, and were passed from three to seven times daily with a definite tendency toward increased frequency during the early morning hours. The diarrhea continued despite medication and dietary adjustment. Emaciation was progressive and prostration became extreme. The patient was mentally clear but extremely irritable. He was completely indifferent to food and complained constantly that his food was so highly spiced that it burned his tongue and increased the burning distress in the epigastrium. These complaints continued irrespective of the character of his diet. He was given several transfusions of whole blood with only temporary improvement. He developed an acute bronchopneumonia from which he recovered with the complication of a large sacral sore. Fine petechial spots appeared on the chest, the back and the arms. The paresthesia of the extremities increased and he began to have attacks of typical tetany. The blood calcium which, on Dec. 1, 1926, had been 9.15 mg. per hundred cubic centimeters of serum, fell to 6.05 mg. in April, 1927. Large doses of calcium lactate were given three times daily and parathyroid extract-Collip was administered three times weekly. The symptoms of tetany were immediately controlled. The patient became less irritable and his appetite returned. Diarrhea was not a factor, although the stools continued to be bulky and light in color. During this period the patient's weight decreased to 90 pounds (41 Kg.), which was 60 pounds (27 Kg.) below his usual weight. June 7, his weight had increased to 119 pounds (54 Kg.) and it was decided to discontinue the use of calcium and parathyroid extract. Instead, cod liver oil and yeast concentrate were given. There was a recurrence of flatulence, soreness of the tongue and epigastric distress, and the bowels moved five times daily. June 27, the blood calcium was 8.57 mg. per hundred cubic centimeters of serum. The resumption of calcium therapy and parathyroid extract was followed by a disappearance of these symptoms. The patient was discharged, August 21, weighing 150 pounds (68 Kg.). The red cell count was 4,140,000; the hemoglobin was 80 per cent, and the white cells numbered 6,100. In December, 1927, the patient reported that he weighed 180 pounds (82 Kg.), was on a general diet, was not taking any medicine and was able to do hard manual labor.

CASE 3.—Mrs. F. L., a white woman, aged 53, was admitted to Wesley Memorial Hospital, May 18, 1927, because of weakness, loss of weight, anorexia, soreness of the tongue, and diarrhea. Born in Mississippi, she had resided in Illinois for six years. She was employed as a piece-worker in a factory for the manufacture of women's clothing. At the age of 16

she had had typhoid, and subsequently she had had malaria several times, the last attack being at the age of 37. She had had several children and was a widow. Her history was otherwise unimportant.

The patient's illness began in December, 1925, with loss of appetite, flatulence and constipation. Defecation was painful and was accompanied by rectal bleeding. In November, 1926, a hemorrhoidectomy was performed in St. Mary's Hospital. While there she was given three transfusions of whole blood, which would indicate that even at that time she had a severe anemia. Diarrhea, which had replaced the constipation, led to her admission to the North Chicago Hospital for study. A macrocytic type of anemia was discovered, and she was referred to Wesley Memorial Hospital as a service case.

Fig. 5.—Megacolon in case 3.

At the time of examination, emaciation was extreme. The skin was loose, harsh and dry and yellowish brown. There were numerous small ecchymotic spots on the skin of the abdomen and both arms. The muscles were atrophic. The mucous membranes were pale. There was no icteric tint to the sclera. Only five teeth remained. The tongue was red and tender, the papillae being small and atrophied. The abdomen was distended and tympanitic. There was no tenderness or rigidity and no masses or organs could be felt. Roentgen examination of the gastro-intestinal tract revealed a normal stomach and duodenum. A 3 quart barium enema failed to fill the large bowel, which was dilated in all parts but most noticeably in the sigmoid portion. The extremities were not edematous. There were no abnormal neurologic signs. The heart, lungs, pelvis and spine were normal.

Laboratory examination showed: red cells, 1,580,000; hemoglobin, 45 per cent; color index, 1.37, and white cells, 6,950. The stained smear showed poikilocytosis and anisocytosis, but nucleated red cells were not found. Macrocytes predominated. Hemolysis of the red cells began in 0.42 per cent salt solution and was complete in 0.3 per cent solution. The direct and indirect van den Bergh tests were negative. The blood Wassermann reaction was negative. The basal metabolic rate was plus 13. An Ewald meal removed at the end of one hour showed an absence of free acid and a total acidity of 8 degrees. The urine showed a trace of albumin and a slightly positive urobilin test. The stools were light colored and bulky, had an offensive odor and contained fat.

On the basis of the blood picture and the achlorhydria, a diagnosis of pernicious anemia could have been made had it not been for the presence of extreme emaciation, a dilated colon and malabsorption of fat. These observations led to a diagnosis of nontropical sprue.

Calcium lactate, cod liver oil, parathyroid extract-Collip and yeast concentrate were given singly and in combination. The diet consisted of liver, fruit juices, milk, cereals, purées and custards. The clinical course varied. At times diarrhea and flatulence were not manifest for days. Such a period would then be followed by one of anorexia and gastro-intestinal distress apparently brought about by an excess of carbohydrate in the diet. The blood calcium on two occasions was 9 and 9.26 mg. per hundred cubic centimeters of serum. On other occasions it was 7.6, 7.8, and 7.9 mg. There was paresthesia, but the motor signs of tetany were absent. There was almost constant complaint of soreness of the tongue. The patient's weight decreased to 50 pounds (23 Kg.). Her usual weight was 112 pounds (51 Kg.). The lowest red cell count recorded during her illness was 915,000; the hemoglobin was 30 per cent; the color index, 1.6, and the white cells numbered 2,175. About August 1, clinical improvement commenced. The red cell count began to increase and on October 17 had reached 3,600,000, with 70 per cent of hemoglobin. The patient was discharged, October 20, weighing 105 pounds (48 Kg.). In December her weight was 113 pounds (51 Kg.), at which point it has remained. In May, 1928, the red cell count was 4,500,000, and the hemoglobin was 80 per cent. The red cells had a normal appearance. A gastric analysis at this time showed a persisting absence of acid. Since her discharge from the hospital the patient has been on a general diet; she has not received any medication and has not had any abdominal distress. Since her recovery from the condition which led to her admission to the hospital, the patient has been complaining of arthritic symptoms referable to the larger joints. There is no swelling, redness or tenderness. Roentgen examination does not show any evidence of arthritis but does show a very marked decrease in bone density.

CASE 4.—A. W. B., a white man, aged 42, of native birth, a farmer, was admitted to Wesley Memorial Hospital, May 4, 1926, because of loss of weight and strength; diarrhea; gaseous distention of the abdomen; regurgitation, and epigastric pain—all of one year's duration. A resident of Illinois, he had never been in the tropics or the Southern states. Ten years and again three years before the onset of his illness he had had attacks of nausea and anorexia accompanied by jaundice. He was married and had eight healthy children. His habits were excellent. His heaviest previous weight was 172 pounds (78 Kg.). His weight on admission to the hospital was 147 pounds (67 Kg.). His statement that his mother, a brother and two sisters had died of cancer was confirmed. His present illness began insidiously and developed slowly throughout a period of one year. At no time prior to his admission did he complain of either soreness of the tongue or cramping of the muscles. There was no complaint of paresthesia.

The patient was tall, thin and well built, and not acutely ill. The head, neck, heart and lungs were normal. There was distention of the abdomen, which had a somewhat doughy feeling. The liver edge was just palpable on deep inspiration but was not tender. No tumor masses were found. The spleen and kidneys were not palpable. The prostate was normal. Rectal examination was negative. Proctoscopic examination showed a normal pale mucosa. A roentgenologic study showed a normal esophagus, stomach and duodenum. The entire colon was dilated and redundant. A roentgen examination of the chest did not show anything abnormal except a broadened aorta.

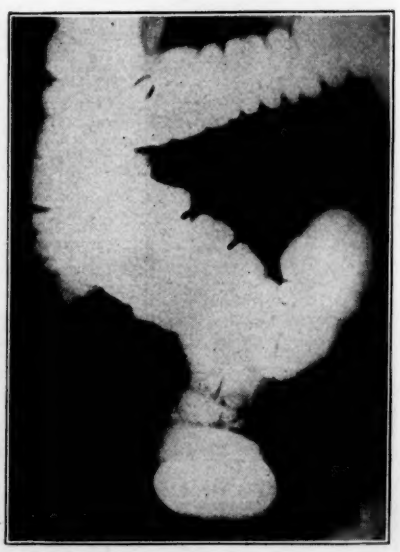


Fig. 6.—Megacolon in case 4.

Laboratory analysis of the gastric contents showed a free acidity of 35 degrees at the end of one hour. The stools were light colored but formed, containing some mucus but essentially negative on microscopic examination. The urine was normal. Kidney function tests were negative. The red cells numbered 2,600,000, and the white cells 3,700; the hemoglobin was 53 per cent, and the color index was 1. Poikilocytosis, anisocytosis and polychromatophilia were present, but nucleated red cells were not found. The differential count showed 35 per cent neutrophils, 50 per cent lymphocytes, and 15 per cent transitional and large mononuclear cells. The volume index (Hayden) was 1.27. Repeated counts during May showed the

red cells to vary in number from 1,900,000 to 2,700,000. The Wassermann reaction of the blood was negative. The basal metabolic rate was —15.2 per cent.

The patient was put on a diet of green vegetables, liver, kidney, sweetbreads, orange juice and tomato juice, and was given cod liver oil. July 8, 1926, the blood count was 4,560,000; the white cells numbered 6,900, and the hemoglobin was 65 per cent. There was still considerable irregularity of the cells. The intestinal condition seemed to have improved somewhat. August 26, he complained for the first time of weakness, tingling, numbness of the legs and cramping of the muscles. He was having several loose bowel movements during the night, and he suffered from epigastric distress and colicky pain after meals. His weight was 151 pounds (69 Kg.). September 3, he was readmitted to the hospital. There were no significant changes either in the physical observations or in the various laboratory tests, except for the fact that he had developed markedly positive Chvostek and Trousseau signs and that the blood calcium was 5.6 mg. per hundred cubic centimeters of serum. The basal metabolic rate was again —15 per cent. He was given 10 units of parathyroid extract-Collip and 6 drachms (24 Gm.) of calcium lactate daily, together with 6 grains (0.4 Gm.) of thyroid extract. The protein fraction of the diet was lowered. Treatment failed to control the symptoms completely. November 20, while at home, he had a severe attack of cramps and diarrhea, associated with extreme emotional depression and a chill without fever. There was no localized abdominal pain but there were many watery stools. The pulse rate fell to 48. December 28, the blood calcium was 4.75 mg. per hundred cubic centimeters of serum. December 30, it was 4.7 mg.; Jan. 3, 1927, it was 5.2 mg. It continued low until parathyroid extract was increased to 30 units daily. January 14, it was 9.4 mg. and January 21, 10.2 mg. January 22, the patient had a very severe attack of tetany during which the blood calcium fell to 5.40 mg. Ten days later it was again normal and has been maintained in the low normal zone since that time. The diet and medication have been modified from time to time. The calcium lactate and parathyroid extract were gradually reduced. From April, 1927, to April, 1928, the patient took 15 units of parathyroid extract twice a week and 60 Gm. of calcium lactophosphate daily. At present he weighs 164 pounds (74 Kg.). He does 10 hours of medium farm work daily. Mentally he feels normal. He does not complain of any of the symptoms of tetany. He has little abdominal distress but does have a feeling of fulness and flatulence. Three large, gray heavy stools are passed daily. The red cells number 4,970,000, and the white cells, 6,500; the hemoglobin is 80 per cent.

Fig. 7.—Barium enema: megacolon in case 5.

CASE 5.—J. G., a white man, aged 49, admitted to Wesley Memorial Hospital, Dec. 12, 1927, had always been a resident of Chicago and had never been out of the state of Illinois. His family history was unimportant. Ten years before he weighed 217 pounds (98 Kg.). By means of dietary control and physical exercise he reduced his weight to 163 pounds (74 Kg.), which was his weight at the beginning of the present illness. During the summer of 1925 he began to suffer from an almost continuous epigastric pain, which was not relieved by food. While under medical treatment for the relief of pain, he began to pass copious, soft, light-colored, offensive stools. Following the onset of diarrhea he lost 40 pounds (18 Kg.) in the course of a few months. In March, 1927, after having tried various forms of medical treatment, he was admitted to the dispensary of Northwestern University Medical School. Physical examination and various laboratory tests did not lead to a satisfactory explanation of his symptoms. It was learned that on various occasions he had had tetanic cramps in the hands, feet and legs. A single strongly positive Wassermann reaction was reported. He was put on an ulcer regimen and was given antisyphilitic treatment. From March to August, 1927, he received 4.35 Gm. of neoarsphenamine and 1.3 Gm. of bismuth. There was no improvement in his condition and he was therefore admitted to the hospital for further study.

At the time of examination, the general appearance of the patient suggested loss of weight. The skin was sallow but the mucous membranes were a normal pink. The head and neck were normal. The tongue did not show any evidence of disease. The heart and lungs were normal. The abdomen was generally distended and tympanitic. The edge of the liver could not be felt and by percussion it appeared to be smaller than normal. There was no tenderness and no masses could be felt. No physical signs indicating the existence of syphilis were discovered. A roentgenographic study showed a high-grade hypertrophic ostearthritis of the spine. There were old fibrotic changes in both apexes. The heart and aorta were normal. The gastrointestinal tract was normal except for a marked and uniform increase in the diameter of the colon. The patient complained of mild paresthesia of the lower extremities, but neurologic examination was negative. Chvostek and Trousseau's signs were absent.

During a prolonged residence in the hospital, numerous Wassermann and Kahn tests were made with negative results. The fasting stomach contained 42 cc. of viscid mucus with a total acidity of 3. A fractional test meal showed the presence of 15 degrees of free acid in seventy-five minutes and a total acidity of 40 degrees in two hours. The stools were light in color, frothy, bulky and of the consistency of porridge. They contained undigested food. Ova and parasites were absent. Blood and mucus were absent. The dried feces contained 18.30 per cent of neutral fat; 13.18 per cent of free fatty acid, and 10.02 per cent of combined fatty acid. With the Wohlgemuth test, 0.1 Gm. of feces caused complete digestion of 5 cc. of 1 per cent starch. Small pieces of uncooked meat tied in gauze bags were given and subsequently recovered from the feces. The tissue was washed, fixed and stained. There was disintegration of the muscle fibers with loss of striations and a complete absence of nuclei. The urine was normal. The blood count did not show any anemia. The red cells numbered 4,520,000, and the white cells, 6,700; the hemoglobin was 80 per cent; the color index, 0.88, and the volume index (Hayden), 0.92. The basal metabolic rate was —14.6 and on another occasion —15 per cent. The blood calcium, December 14, was 6.6 mg. per hundred cubic centimeters of serum.

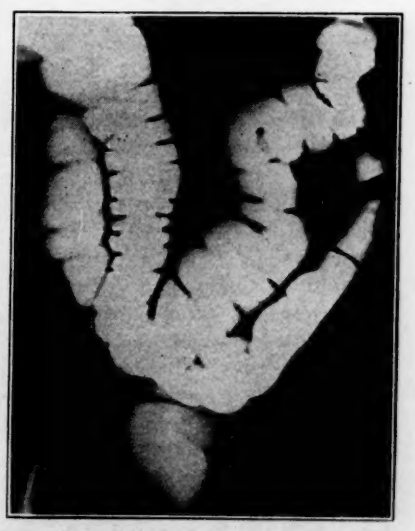


Fig. 8.—Barium enema: moderate distention and reduplication of colon in case not reported here.

During a preliminary period of two weeks the patient was kept on a general diet. Two tablets of yeast concentrate were given with each meal. There was no change either in the appearance or in the frequency of the stools. He did not gain in weight. The symptoms of tetany were mild and exclusively sensory despite the low level of blood calcium. During the next

period the general diet was continued; the yeast concentrate was discontinued, and he was given 1 drachm (4 Gm.) of calcium carbonate twice daily. In forty-eight hours it became necessary to discontinue the calcium because of the distress caused by the passage of hard fecal masses. December 27, the blood calcium was 7.52 mg. per hundred cubic centimeters of serum. During January he received a high protein diet which also contained some fat and some starch. Fifteen units of parathyroid extract-Collip was given twice weekly and calcium lactate was given four times daily in 1 drachm (4 Gm.) doses. There were no significant changes either in symptoms or in weight. January 17, the blood calcium was 7.75 mg. and February 6, it was 5.8 mg. From February 9 to February 28, the patient was on a diet containing 300 Gm. of carbohydrate, 115 Gm. of protein and 214 Gm. of fat. He received 20 units of parathyroid extract and 50 Gm. of calcium lactate daily. His weight continued to fluctuate between 125 and 127 pounds (57 and 58 Kg.). The stools varied from one to four daily, were frequently formed, and occasionally were constipated. February 15, the blood calcium was 8.75 mg. and on March 1, 8 mg. From March 3 to April 1, he received a diet containing 148 Gm. of carbohydrate, 142 Gm. of protein and 60 Gm. of fat. Calcium lactate and parathyroid extract were discontinued. His weight remained stationary. The stools were always unformed and varied in color from light brown to light tan. The blood calcium, March 5, was 7.76 and, March 30, 7.4 mg. per hundred cubic centimeters of serum. The patient is still under observation. There has been very little change in his condition largely because, with his permission, we have been trying to learn the factors that modify the malabsorption of food in his case. From time to time he has complained of paresthesia and cramping of the muscles, but tetany has been a minor feature despite the low calcium figures.

Fig. 9.—Decrease in density of femur, as compared with normal bone, in case 3.

SUMMARY

The cases here reported illustrate a clinical state characterized by extreme emaciation, anemia, fatty diarrhea and tetany. In two of the cases the loss of weight amounted to 50 per cent of the usual body weight and, in a third, 40 per cent. Anemia was present in four of the cases. From the hematologic standpoint alone it would be difficult to differentiate the anemia present in these cases from pernicious anemia. The clinical observations, however, are quite unlike those of pernicious anemia. The coexistence of anemia and paresthesia of the extremities is not sufficient justification for a diagnosis of combined degeneration of the cord in the absence of objective signs of cord disease.

The sensory symptoms of tetany resemble those of combined degeneration of the cord but differ in that they are quickly controlled by restoration of a normal blood calcium balance. Of the five cases reported, treatment with a varied diet containing small amounts of carbohydrate and fat and a large amount of protein gave the most satisfactory results. An excess of carbohydrate, particularly cane sugar, increased the tendency to flatulence, while an excess of fat increased the diarrhea. Large amounts of protein did not aggravate the tetany. Heliotherapy, cod liver oil, yeast concentrate, tomato juice and orange juice were used. Calcium salts given in large doses during the fasting state and with meals modified the diarrhea and often raised the level of serum calcium but was not effective in controlling the symptoms of tetany. In four cases improvement in the clinical condition occurred when the serum calcium was maintained at a normal or nearly normal level. The loss of from 40 to 50 per cent of the body weight is usually fatal, and we are convinced that three and possibly four of our patients would have died had parathyroid extract-Collip not been available for use in maintaining a normal serum calcium. Treatment resulted in a clinical cure in three instances; one patient under treatment elsewhere is improved and one patient under our own observation has failed to gain in weight although diarrhea, tetany and epigastric pain have been controlled. The condition described resembles celiac disease and sprue but may easily be mistaken for other diseases. The most characteristic symptoms are emaciation, fatty diarrhea and calcium imbalance.

30 North Michigan Avenue.

Clinical Notes, Suggestions and New Instruments

A CASE OF CREEPING ERUPTION IN NORTH DAKOTA

W. A. WRIGHT, M.D., GRENORA, N. D.

Although the case here reported did not present any unusual features, I believe that it deserves a short report on account of the rarity of the condition. So far as I am aware there has been only one case reported as occurring in North Dakota. A recent article by Austman,[1] in which he reported a case in Manitoba, contains a complete survey of the literature.

REPORT OF CASE

A. G., a white boy, aged 18, a native of North Dakota, consulted me, Aug. 8, 1928, complaining that he had a snake in his back. Four weeks previously he had been swimming in a stagnant pool of water. The next day he noticed that his back became very itchy. The itching continued to bother him, being worse at night, and at times he thought he could feel something crawling under the skin. He had not seen the eruption until that day.

Appearance of creeping eruption.

Examination showed a reddened papular eruption extending in a narrow tortuous line from near the spine to the lateral chest wall. The eruption is fairly well shown in the accompanying illustration, although somewhat magnified as a result of the closeness of the camera to the patient.

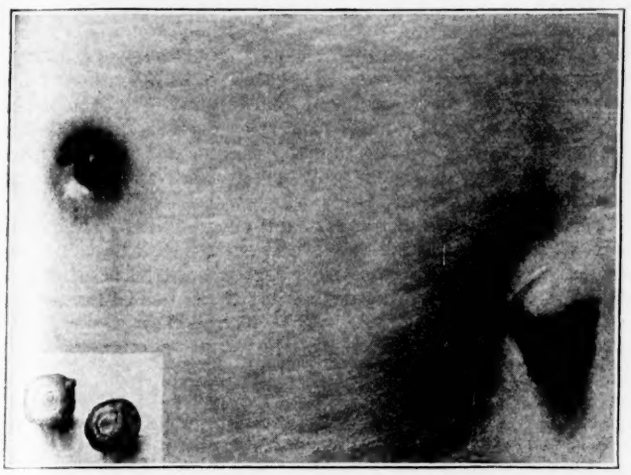
As suggested by Austman,[1] I endeavored to visualize the causative larva by means of a small lens and a film of oil on the skin. Being unsuccessful, I then scratched the advancing end of the burrow lightly with a scalpel and examined the scrapings microscopically under low and high powers. I did not find the larva, although it must have been removed, as the itching ceased immediately and the eruption disappeared within a week. The nature of the eruption would suggest that it might have been that of *Gastrophilus intestinalis.*

1. Austman, K. J.: Creeping Eruption, J. A. M. A. **87**: 1196 (Oct. 9) 1926.

RUPTURE OF GALLBLADDER THROUGH ABDOMINAL WALL

LOUIS J. GARIEPY, M.D., DETROIT

Perforation of the gallbladder is so infrequent as to warrant reporting of unusual cases. Although rupture of the gallbladder with formation of fistulas has occurred, relatively few cases have been reported. Only three cases have been reported in the American literature. Beye[1] reported a case in which the rupture took place in the right flank. Georg[2] reported one, identical with mine, in which the rupture took place over the



Appearance of fistula on abdominal wall nine months after perforation of the gallbladder.

gallbladder area. In Abell's[3] case the rupture took place below Poupart's ligament. In the German literature, Hoerhammer[4] reported one perforation through the abdominal wall, as contrasted with nine perforations into the abdominal cavity. Fabricius[5] reported three cases. In the French literature, in 1899, Courvoisier reported observations on 499 cases of perforation of the gallbladder, of which 196 were perforations through the abdominal wall, as against only 119 perforations into the free peritoneal cavity, and 197 perforations into the intestinal tract. The statistics of Courvoisier are remarkable, since they show such a high percentage of perforations through the abdominal wall. But Courvoisier himself doubts the correctness of these figures, since some of these reports were taken from very old journals, and in only a few were examinations made at operation or autopsy.

In the case that I am reporting, the fistula opened on the abdominal wall, over the gallbladder area. It is interesting because of the clinical picture presented by the patient preceding the rupture of the gallbladder, and because of the patient's present condition.

A white woman, aged 51, Polish, married, had had pneumonia, followed by erysipelas, fourteen years before, but had never had typhoid or puerperal fever. She had had twelve children, all of whom were delivered normally. Nine children were living and well, and three died in infancy. The family history was negative for cancer and tuberculosis. The patient's weight at examination was 180 pounds (82 Kg.). Her best weight was 200 pounds (91 Kg.). She had always been well.

The patient was seen by me, Jan. 1, 1928, on which date she had been seized with a severe pain in the upper right quadrant of the abdomen, radiating to the back. She described the pain as being in the pit of the stomach. The patient was not jaundiced or nauseated; she did not vomit. The temperature was 101 F. and the pulse was 80. The urine was normal except for a trace of albumin. The white blood count was 18,000 with 80 per cent polymorphonuclears. The blood pressure was 140 systolic and 80 diastolic. Examination of the patient was negative except for the condition of the abdomen. On palpation of the gallbladder area, which was very tender, one could feel a definite mass about the size of an orange. Muscle spasm and rigidity were present over the right side. The patient was advised to enter the hospital but refused, so a hypodermic injection of morphine was given to ease the pain. This relieved her temporarily, and she continued to do her house work. She was seen six times during the following three weeks. On my sixth visit, three weeks after the onset of the pain, the tender area over the gallbladder region was inflamed and slightly fluctuating. Moist hot applications were applied to the abdomen, and within twenty-four hours the mass ruptured, discharging a mucopurulent material and two gallstones, shaped like a cube and about a half inch in diameter.

At present, nine months later, the fistula continues to discharge bile, but no other stones have been passed. The accompanying illustration demonstrates the appearance of the sinus now. The inconvenience of wearing a dressing over the sinus tract does not worry the patient. She feels well, and still staunchly refuses to be operated on. She is not jaundiced, nor is there bile in the urine. The stools are normal in color. The pulse is 80; the white blood count is 10,500, and the polymorphonuclears are 70 per cent.

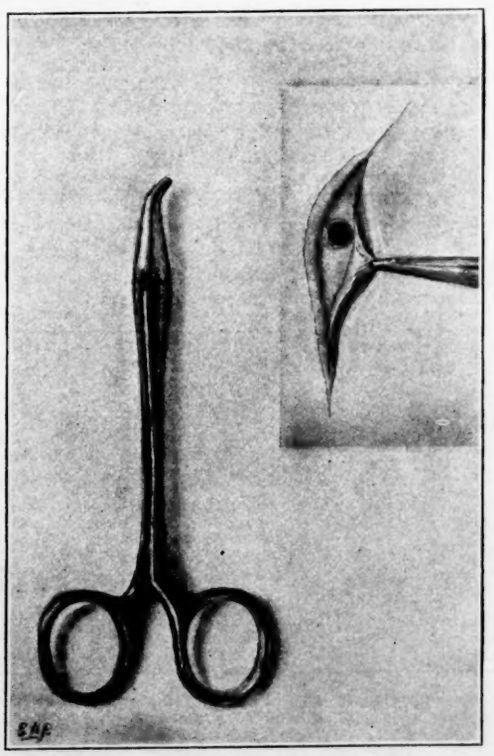
Maccabee Building.

1. Beye, H. L.: Perforation of the Biliary Tract, J. A. M. A. **65**: 2084 (Dec. 11) 1915.
2. Georg, Conrad, Jr.: J. Michigan M. Soc. **24**: 595 (Nov.) 1925.
3. Abell, L.: Kentucky M. J., 1908.
4. Hoerhammer, C. L.: München med. Wchnschr. **63**: 1451 (Oct. 10) 1916.
5. Fabricius: Wien. Klinik, 1899.

FORCEPS FOR HEMOSTASIS IN CRANIAL OPERATIONS*

ANATOLE KOLODNY, PH.D., M.D., IOWA CITY

Bleeding of the scalp in cranial or intracranial operations is best controlled by the application of forceps to the aponeurosis (galea) about 1 cm. apart; when turned outward, the forceps compress the galea against the margins of the skin and thus act hemostatically. When straight forceps, applied to the galea, are turned outward, they tend to tear the galea at the point of



Curved forceps for hemostasis in neurosurgery. Inset: forceps applied to skin flap.

application and to traumatize the skin edges of the scalp when left in place long, as is the case in neurosurgical operations. Both these disadvantages may be avoided by using forceps curved in the manner illustrated here.

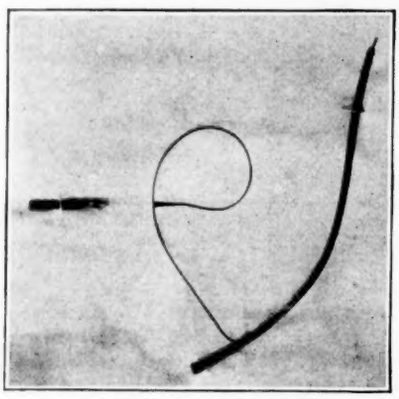
* From the Department of Surgery, State University of Iowa College of Medicine.

These forceps stretch the galea in a gentle manner semicircularly over the margin of the skin. They are especially advantageous in incisions in which the scalp is left in situ during the operation and not dissected away or lifted up from the skull. These forceps, designed by me early in 1927, have been used since with advantage in Dr. Dandy's service at the Johns Hopkins Hospital and are in use at present in my own work at the Iowa University Hospital. They are made by the Charles Willms Company in Baltimore.

CONTINUOUS IRRIGATION

CHARLES FERGUSON, M.D., ELLIS ISLAND, N. Y.

The accompanying illustration portrays an irrigation apparatus assembled from a urethral and a ureteral catheter. The soft rubber catheter is drilled with a hot needle near its outlet and through its tip. An open tipped ureteral catheter is then threaded through it from the side to the tip.



Apparatus for continuous irrigation, composed of a urethral and a ureteral catheter.

The irrigating solution flows through the ureteral catheter into the cavity and out through the large catheter.

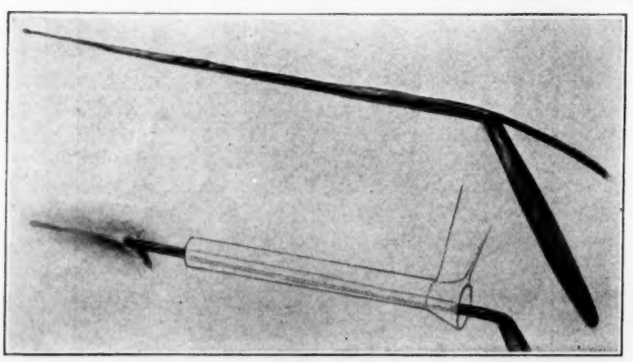
It is a convenient apparatus with which to treat deep sinuses. I have found it to be especially useful in cases of infected bladders. It constantly permits the introduction of an antiseptic solution when a retention catheter is used for decompression and drainage of the bladder.

Marine Hospital.

A PROBE-GROOVE-DIRECTOR FOR URETERAL CATHETERIZATION

I. RIDGEWAY TRIMBLE, M.D., BALTIMORE

The probe-groove-director was devised in order to enable one to locate more easily a ureteral orifice in the female bladder, to hold it in a position for catheterization, and then to have a guide for the catheter as it rides into the ureter.



Probe-groove-director to aid in locating the ureteral orifices in the female bladder; a help in ureteral catheterization.

With the patient in the knee-chest position, the urethra is dilated and the Kelly cystoscope passed in the usual manner, as originally described by Dr. Kelly.[1] One of the ureteral orifices is then located, and its location may be facilitated by means of the probe on the end of this new instrument. The blunt probe with its malleable stem is passed into the ureteral orifice up to the junction of the base of the probe and the grooved portion of the instrument. The handle is then best held by an assistant while the catheter is next passed along the groove by the operator. The tip engages at the ureteral orifice, which is slightly dilated by the instrument in place; the catheter rides easily into the ureter, and the probe-groove-director is withdrawn as soon as the catheter is well engaged.

Johns Hopkins Hospital.

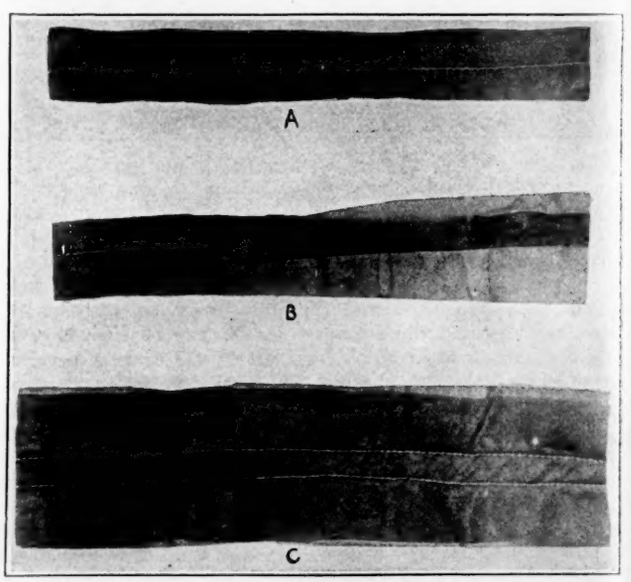
1. Kelly, H. A.: Bull. Johns Hopkins Hosp., 1894.

A NONELASTIC RUBBER STRIP DRAIN *

DONALD A. CHARNOCK, M.D., SAN FRANCISCO

The use of doubled strips of rubber dam material for drains has become general in this clinic, especially for wounds that do not require irrigation. These have been found superior to tubing and the ordinary type of cigaret wicks because they are nonirritating to the wound and the capacity of the drain is increased as a result of the capillarity derived from the two opposed surfaces of the rubber dam material. On removal, these drains leave very little deformity in the tissue and they do not tend to plug the wound, as do wick or tube drains frequently.

This type of material has the fault of stretching considerably and of sometimes breaking, a portion being left within the wound. To obviate this we have strengthened strips of rubber dam material by running a seam down the center with a sewing machine. This makes the rubber nonelastic and adds sufficiently to its tensile strength to insure the drain being withdrawn intact. It further keeps the two surfaces accurately opposed. At the same time the drain may be removed to the desired length without slipping, as it frequently does when it stretches.



Nonelastic rubber strip drain: *A*, piece of rubber strip drain; *B*, the rubber strips stitched together; *C*, rubber strip packing.

The drains are made by running a seam in doubled strips of rubber dam material with an ordinary sewing machine. The rubber does not feed through the machine freely and the doubled strips are placed between two sheets of paper, all being sewed together. The paper is then removed, the seam being left in the rubber strip. It has been found that cotton thread is the most satisfactory. The loose ends of cotton are tied. A large sheet of the material may be sewed at one time, seams being made at the desired intervals, and the strips being cut as required. The strips are sterilized by soaking in alcoholic red mercuric iodide 1:1,000 solution for twenty-four hours.

For the past year packing of this type has been used following perineal prostatectomies. These have been made about 2 inches in width and about 4 feet in length. Two strips of rubber dam material are stitched together with a strip of half inch tape between them. The stitched pack is rolled in gauze and sterilized in the autoclave.

* From the Department of Surgery and Division of Urology, University of California Hospital.

The advantage of this type of pack is its ease of removal, no trauma being caused to the surrounding tissue. It does not give the same amount of hemostasis as the gauze pack, but if the wound is relatively dry at the completion of the operation the rubber dam packs will give sufficient compression to control bleeding. On removal, the pack does not cause fresh bleeding by trauma to the tissue. Since these packs have been used there has been less bleeding following prostatectomy than when the gauze packs were used.

EPIDIDYMITIS ASSOCIATED WITH TYPHOID

GEZA GREENBERG, M.D., AND MAX GREENWALD, M.D.
NEW YORK

While epididymitis complicating typhoid in its course, or during its convalescent period, is rare, only 102 cases having been reported up to 1909, a careful search of the literature does not reveal a report of any case which followed typhoid four years later. On account of the rarity of the condition, therefore, we find our case of sufficient interest to put it on record.

REPORT OF CASE

M. P., a man, aged 58, had a prostatectomy performed in July, 1924. In October of the same year, he contracted typhoid. During a rather prolonged and stormy convalescence, he developed an acute cholecystitis. In December he left the hospital fully recovered. One year later he had a similar attack of cholecystitis, which lasted about one week. It is noteworthy that for a period of two years following the typhoid infection, the stools yielded positive cultures, but they have since, on repeated examinations, been found negative. In December, 1927, the patient had another attack of cholecystitis, from which he recovered in a short time. Oct. 15, 1928, he again suffered a relapse of the cholecystitis, which lasted about one week. These attacks were undoubtedly caused by biliary calculi, which, as is well known, not infrequently follow typhoid. After the subsidence of the gallbladder symptoms, he developed an acute epididymitis on the right side. The epididymis was moderately enlarged, indurated and slightly tender; the pain was not very severe, and the temperature ranged between 100 and 100.5 F. The Widal reaction, in a dilution of 1:100, was positive; the stools, however, were negative.

COMMENT

Hare and Beardsley,[1] in their work on typhoid, in 1909 reviewed the literature on epididymitis complicating typhoid. Olivier,[2] in 1883, reported three cases of orchitis in his series of cases of typhoid. Liebermeister encountered three cases in a series of 250 cases. Sorrel reported three cases of epididymitis in a series of 871 patients with typhoid. Osler, in a series of 1,500 cases, reported four of epididymitis. Of the 102 cases reported up to 1909, epididymitis developed in seventy-one instances during the convalescence, and in seventeen during the height of the fever; in the remaining cases the period of its occurrence has not been reported.

PATHOLOGY

In some cases, the testicle alone without the adjacent structures was inflamed, while in others the epididymis alone was involved, but in the majority of cases both the epididymis and the testicle shared the inflammation. The majority of cases resolved without suppuration. Of the 102 cases reported, in thirty-one the testicle alone, in ten the epididymis alone, and in forty-three the epididymis, the testicle and the cord were involved. Suppuration occurred in twenty-two of 102 cases. In many cases atrophy of the testicle followed.

Widal, in his postmortem examinations in many cases of typhoid, recovered the typhoid bacillus from the testicle. In 1902 Schottenmiller proved that typhoid bacilli circulated in the blood. Fox demonstrated focal necrosis of the testicle in a number of cases, and explained it on the basis of a phlebitis of the spermatic veins occurring in typhoid. Hektoen obtained a positive Widal reaction from the contents of the gallbladder in the postmortem examination of a case of suppurative cholelithiasis six years after a typhoid infection.

1. Hare and Beardsley: Medical Complications, Accidents and Sequels of Typhoid Fever and the Other Exanthemata, Philadelphia, Lea & Febiger, 1909.
2. Olivier: Rev. de méd., 1883, pp. 829-861.

Bernheim was the first to call attention to the relationship existing between typhoid and gallstones, but Welsh was the first to isolate the typhoid bacilli from the gallstones; Furnier found living or dead typhoid bacilli in thirty-eight cases in the postmortem examinations of 100 biliary calculi.

CONCLUSION

1. A relationship between typhoid and gallbladder disease has been established by the finding of typhoid bacilli in the gallbladder contents.

2. That there is also a relationship between gallbladder and epididymal infection has been demonstrated by the case reported here. The epididymis, by virtue of its evolution from the anlage that goes to form the kidney, must be considered an excretory organ; and any organisms circulating in the blood, whether they are streptococci absorbed from diseased tonsils, sinuses, teeth or an infected gallbladder or appendix, or typhoid bacilli from a diseased gallbladder, or tubercle bacilli from pulmonary tuberculosis or some other viscus infected with tubercle bacilli, will find lodgment in the epididymis, which was designed in the embryonic state as an excretory organ.

11 West Fifty-Fifth Street—38 West Fifty-Ninth Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

DIAL-CIBA.—Diallylbarbituric acid.—Diallylmalonylurea.—2,4,6-trioxy-5-diallylpyrimidin.—$(C_3H_5)_2C$ CONH CONH CO. Dial-Ciba differs from barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced by allyl groups.

Actions and Uses.—The actions and uses of dial-Ciba are essentially similar to those of barbital, but dial-Ciba is more active than barbital and it is used in correspondingly smaller doses. Fractional doses are used as a sedative and larger doses as a hypnotic. Therapeutic doses act on the higher cerebral centers and exert no injurious action on the heart or circulation. The hypnotic action is induced within one-half to one hour.

Dosage.—As a sedative: 0.02 to 0.04 Gm. (⅓ to ¾ grain) two or three times daily. As a hypnotic: 0.1 to 0.3 Gm. (1½ to 4½ grains) one-half to one hour before sleep is desired.

Manufactured by the Society of Chemical Industry in Basle, Switzerland (Ciba Company, Inc., New York, Distributor). U. S. patent 1,042,265 (Oct. 22, 1912; expired). U. S. trademark 98204 and 126088.

Tablets Dial-Ciba, 0.1 Gm. (1½ grains).

Elixir Dial-Ciba: Each 4 cc. (1 fluidrachm) contains 0.05 Gm. (¾ grain) in a menstruum containing alcohol 25 per cent.

Dial-Ciba occurs as a fine, white, crystalline powder, with a slightly bitter taste; completely soluble in alcohol and ether; very slightly soluble in cold water; insoluble in the paraffin hydrocarbons. A saturated aqueous solution is acid to litmus paper. Dial-Ciba melts at 171-173 C.

Place approximately 0.3 Gm. dial-Ciba in a 25 cc. glass stoppered cylinder, add a mixture of 1 cc. normal sodium hydroxide solution and 5 cc. of water, shake the contents for one minute, filter through paper and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in 10 cc. of ammonia water; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in 5 cc. of ammonia water. Boil 0.5 Gm. with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with the evolution of ammonia. Dissolve 0.1 Gm. in 1 cc. of sulphuric acid: the liquid assumes a yellow color, changing slowly to a brownish-red, finally to a dark red. Place 1 Gm. in a 25 cc. glass stoppered cylinder, add 10 cc. of water, shake for one minute, filter through paper and divide into two portions; to one portion add 0.5 cc. of a saturated bromine water: an immediate discoloration occurs; to the other portion add 0.1 cc. of tenth-normal potassium permanganate: a yellow color appears immediately.

Boil 0.5 Gm. of dial-Ciba with 50 cc. of water for two minutes: no odor develops; cool and filter: separate portions of 10 cc. each of the filtrate yield no opalescence with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate solution (*chloride*); no turbidity with 1 cc. of diluted nitric acid and 1 cc. of barium nitrate solution (*sulphate*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Incinerate about 1 Gm. of dial-Ciba, accurately weighed: the residue does not exceed 0.1 per cent. Dissolve about 0.5 Gm., accurately weighed, in 25 cc. of previously neutralized alcohol; dilute with an equal volume of water and titrate with tenth-normal sodium hydroxide solution, using thymolphthalein as an indicator: the amount of tenth-normal sodium hydroxide solution consumed corresponds to not less than 98.5 per cent, nor more than 101.5 per cent of diallylbarbituric acid.

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SATURDAY, MARCH 23, 1929

CONGRESS HONORS THE YELLOW FEVER COMMISSION

The work of Walter Reed and his associates of the Yellow Fever Commission has now been officially recognized by the Congress of the United States and approved by the President. The twenty-two members of the military establishment who participated in the experimental investigation of yellow fever in Cuba are to constitute a roll of honor that shall be published annually in the Army Register. In further recognition of their public service, gold medals will be presented to those who are living and posthumously to representatives of those who have died. Congress provided also a pension of $125 a month to the sixteen living members and to the widow of one of the soldiers. The everlasting benefit resulting from the courage of these men has received consideration on previous occasions, and from time to time aid has been extended to some of those in need. The report of these experiments published for the use of the Senate in 1911 is one of the most interesting volumes in American medicine. However, these men have not been honored by Congress alone. The American Medical Association at the Saratoga session in 1902 sent the members of the Yellow Fever Commission a vote of thanks and resolved that the far-reaching beneficence of their discovery was second in magnitude only to that of Jenner's discovery of vaccination. Scientific societies throughout the country paid similar respects; the Virginia state medical society has made the birthplace of Reed a national shrine, and monumental structures have been named in honor of other members.

These are the Americans who risked their lives to help discover the method of transmission of a fatal epidemic disease. They volunteered to be injected with blood from patients dying of yellow fever or to be bitten by infected mosquitoes, to sleep in beds in which patients died, and to wear the clothes of patients who died. Thus they helped drive yellow fever almost from the face of the earth. Our own land had previously been invaded at least ninety-five times with a loss of not less than a hundred thousand lives. It seems incredible in the light of present knowledge that epidemics of yellow fever have taken 3,454 lives in New York, 10,038 in Philadelphia, 4,565 in Charleston, 7,759 in Memphis, 2,000 in Norfolk and 41,348 in New Orleans, besides sweeping through Baltimore and many smaller cities. In those days people fled from their homes, for nobody knew whence or how the scourge came.

When the United States Army commission was sent to Cuba in 1900 to investigate the cause, yellow fever was still taking the lives of American soldiers, although three years before Sanarelli believed that he had discovered the cause. Major Reed, the chairman, knew that Sanarelli's work had been accepted by some American investigators. The commission therefore gave its entire time at first to a search for *Bacillus icteroides* and after a study of twenty-one cases during life and eleven necropsies concluded that it bore no causative relation to the disease. Attention was then given to Finlay's theory that yellow fever was transmitted by mosquitoes. A camp was built near Havana, the buildings being screened so that mosquitoes could be kept in or out, as desired. The work was organized so that every step was controlled. Here the volunteers whom Congress has honored offered their lives and lived for weeks in the face of death. Some of these men did not contract yellow fever but twenty-two cases were produced in the course of the experiments. All except Dr. Jesse W. Lazear recovered. It was proved that yellow fever is transmitted by *Stegomyia fasciata,* that it can be transmitted by the injection of blood from yellow fever patients, and that it is not transmitted by exposure to fomites.

In the further recognition of this achievement and in honoring and assisting these men, Congress has reflected great credit on the whole country. The world has received the benefaction they bestowed.

THE LEUKOCYTES

Although the leukocytes have been recognized since the days of Hewson as constituents of the blood, and their importance in pathologic processes was forecast by Virchow, it must be freely admitted that many features of their origin and function remain to be elucidated. To the clinician who is accustomed to estimate the number of white cells in blood specimens as a matter of routine and to make deductions of diagnostic and prognostic import from his observations, this confession of ignorance may seem unwarranted. Yet even the most readily secured data—those of the leukocyte count—present variations in admittedly healthy persons that are not yet easily explained. One often hears that the average normal total leukocyte count is 7,500 per cubic millimeter; nevertheless, the more recent investigators seem to agree in the advice that it is the normal range rather than the average number of the blood cells that should be sought. The

significance of the "zonal concept" in blood counts has been emphasized by Doan and Zerfas.[1]

The diurnal variations in the number of circulating leukocytes have been ascribed to various physiologic functions that occur somewhat irregularly. The processes of digestion, in particular, have been held responsible for what is supposed to be a regularly appearing postprandial leukocytosis. Exercise, baths and other common activities have been said to affect the temporary distribution of the leukocytes of one sort or another. In a study recently conducted at Mount Holyoke College by Smith and McDowell,[2] it was concluded that there is not only a zone of variation for each person but a characteristic pattern as well. The studies also confirm the observations of those workers who believe that there is a characteristic rhythm of the white blood cells, both total and differential, and that the increase in the afternoon is not dependent on food intake. Although the Mount Holyoke experiments were not primarily undertaken to investigate digestive leukocytosis, some points may be noted which have a bearing on the subject. The numbers, rhythm and afternoon rise of the various types do not differ fundamentally on the days when food was not eaten, on the days when only breakfast and luncheon were eaten, and on the days when small amounts were eaten irregularly in addition to breakfast and luncheon. There is also no definite correlation between the mealtimes and the afternoon leukocytosis. It will come as a surprise to learn from Smith and McDowell that, while it cannot be said absolutely that digestion may not have some effect on the numbers of the white blood cells, the conclusion is obvious from their investigations that it does not have such a profound effect as has been thought. Whatever slight effects it may have cannot be determined, since too many other factors are involved. The rhythmic variations in the numbers of the white blood cells must have some other underlying cause than digestion.

Menstruation also is absolved from responsibility for changing the white blood cell picture in women, if one may accept the Mount Holyoke evidence. Smith and McDowell, in discussing the variations that have been ascribed to physiologic factors, remark that the slight or negative influence of digestion, menstruation and moderate fatigue bring out the fact that the rhythm of the white blood cells tends to be constant in different persons and to conform to characteristic patterns. It is thought, further, that this rhythm is really a functional activity of the cells themselves and cannot be explained as being caused, although it may be influenced, by extrinsic physiologic factors, just as the heart beat is not caused but may be modified by external factors.

Such considerations inevitably raise the question of the significance of these blood cells. Writing only a few years ago, Bunting[3] remarked, in answer to this inquiry, that no cogent evidence exists of what might be called a purely physiologic function for the leukocytes. As far as it is known, their function may be said to be pathologic. At least it is protective, and less physiologically protective than that of skin. After all, the opportunity to function when danger besets the tissues is no mean one.

BACTERIA AND FECAL FAT

Although in some instances the methods by which nature achieves its purposes in the body are wasteful, in nutrition the greatest efficiency and economy prevail. Once the ingested food materials have been prepared for use by the body through the processes of digestion and have been taken into the body by way of the absorbing surface of the intestinal mucous membrane, they are husbanded with great care. They may be used to elaborate new tissue; the energy for muscular work and heat may be obtained from the absorbed foods; indispensable hormones, such as thyroxin and epinephrine, may be produced from them, or the excess may be stored in the body. Never, under ordinary circumstances, is there a loss of appreciable amounts of materials which could be of possible use in the physiologic processes of the organism. Thus the urine, the most important excretion of the body, contains nothing that is of further value in metabolism. Only in pathologic conditions does it contain protein, fat or carbohydrate. Likewise in health little material available to the organism is lost in the sweat and feces. This significant generalization has provided a basis for the determination of the utilization of foodstuffs as well as for the clinical detection of metabolic abnormalities.

An apparent exception to the principle here set forth was observed by Sperry,[4] who, in a series of recent studies on the excretion of fat and fatlike compounds, found that animals receiving a ration essentially free from such substances eliminate a small but definite quantity of lipids in the feces. This consists of true fats as well as of nonsaponifiable material of the nature of cholesterol and amounts to approximately 1.5 Gm. a day. The possible sources of this fecal "fat" are the bile, which contains cholesterol, bacteria which thrive in the intestine and which make up a large portion of the solid matter of the feces, the eroded cells from the intestinal epithelium, and glandular secretions which would represent loss of fat from the body. That the bile was not the source of the lipid was shown by the fact that, when this secretion was diverted from the intestine through a fistula to the outside, the fecal lipid was increased rather than diminished. To study the

1. Doan, C. A., and Zerfas, L. G.: J. Exper. Med. **46**: 511, 1926.
2. Smith, Christianna; and McDowell, Anna M.: Normal Rhythm of White Blood Cells in Women, Arch. Int. Med. **43**: 68 (Jan.) 1929.
3. Bunting, C. H.: The Leukocytes, Physiol. Rev. **2**: 505 (Oct.) 1922.
4. Sperry, W. M.: Lipid Excretion, J. Biol. Chem. **68**: 357 (May) 1926; **71**: 351 (Jan.) 1927; **81**: 299, 1929.

alternative possibility, the feces were treated so as to separate the solids from liquid, and the bacteria were in turn separated from the other solids. A chemical study of the "fats" of the various fractions showed that about 40 per cent of the total was contained in the bacterial portion while the nonbacterial solids, such as desquamated epithelial cells, accounted for most of the remainder. Moreover, the chemical character of the fractions was essentially the same. These facts indicate that the fats and fatlike substances constantly present in the feces arise from body and bacterial cells and not from unabsorbed secretions or excretions poured into the intestine.

The expert gastro-enterologist elicits much useful information from a careful study of fecal residues under controlled conditions. Bacteria play a large part in the composition of the feces and at times exert influence on intestinal function. One must bear in mind the fact that all changes in materials given by mouth can be influenced by such micro-organisms as are present in the intestine at the time and the interpretation of experimental results must therefore be made accordingly. The studies discussed emphasize a contribution of unusual nature made by bacteria to the feces and suggest that possibly other chemical constituents of the feces heretofore attributed to other sources might likewise be due to bacterial activity.

THE PREVAILING ILL HEALTH AND THE PRACTITIONER

The answer to the question of how the "average" physician should be trained and what he may reasonably be expected to know to meet the needs of the public may be sought, in part at least, in the records of actual practice. What are the actual demands that are made by persons for medical attention? This is an inquiry to which the Commission on Medical Education, under the chairmanship of President Lowell of Harvard University and sponsored in part by the American Medical Association, has devoted earnest consideration. Its preliminary report, issued in 1927,[1] outlines the experience of a large group of recent graduates in medical practice in communities of 50,000 or less in twenty-four states and two provinces. A study of their activities reveals that most of the illnesses are not difficult of diagnosis or treatment, and probably 90 per cent can be cared for by a competently trained practitioner with modest equipment and facilities. About 75 per cent of the office visits were for minor surgery, general medical and venereal diseases, and upper respiratory infections. About 90 per cent of home visits were for infections of the respiratory tract, general medical and contagious diseases, obstetrics and minor surgery. More than 90 per cent of the illnesses are of types which cannot be controlled on a community basis but are problems of individual patients. Less than 10 per cent are diseases against which public health efforts are mainly directed. Incidentally, this fact is an index of the growing efficiency of public health efforts and also emphasizes the necessity of treating the patient as well as the disease.

Subsequent studies also justified, in the words of the commission, the common opinion that a rather large proportion of practice is confined to a relatively few diseases, whether in general or in special practice. It is clear from the studies, however, that in general practice physicians should be qualified to recognize serious conditions in their incipient stages, such as cardiorenal, malignant and tuberculous diseases, and that general practitioners should be prompt to see that patients suffering from any of these serious diseases have attention from those who are qualified by special preparation to deal with them. In the field of the specialties the data emphasize that a large fraction of special practice is made up of diseases incidental to more general conditions; that the practitioner of a specialty should be familiar with diseases outside his own specialty, and that he should be unwilling to treat conditions which can be handled better by some one else. The report adds that the discrimination and judgment necessary for both the general practitioner and the specialist in dealing with the different illnesses which they are called on to treat is a difficult but well known aspect of medical practice.

The morbidity survey of certain districts in rural New York, as recently reported by DePorte,[2] brings added elaborate evidence of the numerically unimportant position of the reportable communicable diseases. Even if the nonreportable diseases that come within the field of organized public health activities, such as diarrhea and enteritis (under 2 years), syphilis and gonorrhea, were to be added, DePorte states that the cases of the enlarged group of diseases would equal only 5.6 per cent of all causes of illness represented in the survey. Out of thousands of cases of sickness in villages and towns, about 95 per cent included nonreportable diseases, among which "colds," digestive disorders, surgical cases, neuroses and noncommunicable diseases of children represent a large fraction. The common causes of disabling illnesses and absenteeism correspond closely with 80 per cent of the combined office and home visits of the general practitioner. The obligation and opportunity of the practitioner of today are obvious. The diseases responsible for the bulk of mortality are comparatively inconspicuous among the causes of prevailing ill health. DePorte's study stresses further that greater attention should be given by public health authorities and the practicing medical profession to the nonreportable diseases which are responsible for most of the prevailing ill health.

1. Three reports have already been issued and are available for distribution through the Director of Study, 215 Whitney Avenue, New Haven, Conn.

2. DePorte, J. V.: Sickness in Rural New York: Morbidity Survey of Certain Districts in 1927, J. A. M. A. 92: 522 (Feb. 16) 1929.

Current Comment

THE PERIPHERAL VASOMOTOR MECHANISM IN SHOCK

The problem of the nature of shock has been before physiologists for many years. During the World War, shock was of superior importance and demanded vigorous and effective treatment. Today it is admitted that shock may be due to a variety of causes. Macleod [1] has described it, in a general way, as a condition wherein there is more or less paralysis of the sensory and motor parts of the reflex arc, along with profound disturbances in the circulatory system, subnormal temperature, and frequent and shallow respiration. Obviously, some of these symptoms may be of secondary importance. The early belief that shock is an expression of the exhaustion of the vasomotor center is not supported by actual investigation of the tone of the latter. Consequently, attention has been directed to peripheral rather than central mechanisms concerned with the maintenance of blood pressure. It has been suggested, for example, that the natural tendency of the capillaries is to become dilated, the circulation of hormones in the blood ordinarily serving to maintain the tonus of the vessels and preserve adequate arterial pressure. Meltzer conceived of the existence of antagonistic impulses, respectively augmentative and inhibitory in nature, playing on a peripheral vasomotor mechanism. As a recent reviewer [2] has pointed out, Meltzer concluded that the injuries capable of bringing on shock do so by favoring the development of the inhibitory side of the body functions. It would seem as if the change from a pressor reaction in the normal to a depressor one in the shocked animal on certain afferent stimuli might be another manifestation of the increasingly preponderating inhibitory reactions over the augmentor. Support for the inhibition hypothesis of shock has lately been furnished by Smith [2] from the Hygienic Laboratory of the United States Public Health Service in Washington. His experiments on animals indicate that the production of experimental shock by means of drugs, intestinal trauma, or hemorrhage is associated with harm to the sympathetic vasoconstrictor mechanism. There is a reciprocal relation between the susceptibility of the peripheral vasoconstrictor mechanism to ergotamine—a drug that affects the latter—and such procedures as lead to shock. This is interpreted to mean that agencies capable of bringing on the shock syndrome give rise to a progressive depression of the peripheral vasomotor mechanism. The difference in degree of relative susceptibility of the augmentor and inhibitory fibers to injury accounts for the depressor vascular responses of shock superseding the normal pressor reactions to certain afferent stimuli. The possibility of an exhaustion of a peripheral vasomotor mechanism helps one to understand why, in profound shock, the reaction to epinephrine may be slight while the response to pituitary extracts acting directly on smooth muscle is still satisfactory.

1. Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, ed. 5, St. Louis, C. V. Mosby Company, 1926.
2. Smith, M. I.: The Peripheral Vasomotor Mechanism in Experimental Shock, J. Pharmacol. & Exper. Therap. **34**: 239 (Nov.) 1928.

TYPHOID INFECTION BY RECTUM IN A HOSPITAL

The epidemiology of typhoid is so generally understood that the tracing of the causative factors in outbreaks is ordinarily a routine matter. Isolated cases and some small group outbreaks do not lend themselves to complete analysis as to the causative factors. Too often, perhaps, the field investigator is inclined to regard these single cases and small group outbreaks as due to the carrier without ever being able to establish the facts. Cases are regarded as part of the normal expectancy or of the so-called irreducible minimum. Contact typhoid usually manifests itself so definitely that one can readily determine the method of transmission of the disease. A rather bizarre and not unlikely method of transmission of typhoid was recently reported by Hervey.[1] Thirteen cases of the disease occurred in a hospital and were found to be due to the practice of using the same drip apparatus interchangeably between patients without sterilization. The original source was a patient who developed typhoid on the fourteenth day after admission to the hospital. Nurses and other employees gave negative results in laboratory examinations. This somewhat fortuitous outbreak is another indication of the importance of every reasonable precaution to prevent contact of patients with infection, whether personally and directly or through inanimate objects. Fortunately, typhoid contracted in hospitals is practically a relic of the past.

MEDICAL ASPECTS OF LAW ENFORCEMENT

At the root of antisocial conduct are many elements that only a psychiatrist can properly understand. When Dr. W. A. Potts was first appointed "psychological expert" to the magistrates of Birmingham, England, the appointment was looked on as an almost revolutionary experiment. The experiment has well justified itself, no doubt largely owing to the wisdom and broad outlook of Potts himself. In a recent address to the Royal Society of Medicine he [2] described several cases of delinquency in which both psychogenic and somatic elements had played their part and in which the correction of infections, such as chronic encephalitis, was undertaken coincidentally with the correction of a faulty home environment. Dr. Potts has dealt largely with a juvenile clientele which gives the greatest hopes of successful medical treatment. More recently an experimental psychiatric clinic at Sing Sing prison has given encouragement to those who believe that even hardened criminals can be benefited by advice based on thorough medical examination. The time is auspicious for an appraisal of the help that psychiatry can give in the study of crime. Both medical and legal professions are alive to the possibilities. In the West a physician, professor of psychiatry in the University of Colorado, demonstrates one by one the missed opportunities of reforming, or at least bringing under skilled observation, a youth who eventually shocked the whole

1. Hervey, C. R.: A Series of Typhoid Fever Cases Infected per Rectum, Am. J. Pub. Health **19**: 166 (Feb.) 1929.
2. Potts, W. A.: Delinquency, Proc. Roy. Soc. Med. Sect. Psychiatry **22**: 13 (Jan.) 1929.

country by his callous cruelty. The physician concludes his paper with a series of suggestions which, as he says, "might be helpful in a state program to deal with our criminal situation."[3] In the East a lawyer, chief justice of the New York State Court of Appeals, begs the Academy of Medicine to explore "the dark mystery of crime, the mystery, even darker, of the criminal himself in all the deep recesses of thought and will and body."[4]

Association News

THE PORTLAND SESSION

Transportation

Summer tourist rates in the territory of the Canadian Passenger Association, Western Lines, will be in effect at the time of the annual session of the American Medical Association in Portland, July 8 to 12. These rates are lower than the usual convention rates.

A special train for the accommodation of members of the American Laryngological, Rhinological and Otological Society will leave Chicago on Sunday, June 30, arriving in San Francisco on the evening of Wednesday, July 3. After the meeting of the society in San Francisco, the party will leave for Portland on Saturday afternoon, July 6, arriving in Portland, July 7. Information concerning this special train may be secured from Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Neb.

The Northern Pacific Railway has arranged for a tour by way of Yellowstone Park, leaving Chicago on the morning of Sunday, June 30, and arriving in Portland at 7 a. m., Monday, July 8. Complete information may be had from Mr. E. E. Nelson, Passenger Traffic Manager, Northern Pacific Railway, St. Paul, Minn.

The Canadian National Railways is offering an "all expense" trip from Chicago to Portland and, after the Portland Session, to Seattle, Vancouver, Skagway and West Taku Arm, thence back to Prince Rupert, Jasper Park, Edmonton, Saskatoon, Winnipeg, St. Paul and Chicago. Information concerning this proposed Alaskan tour may be secured through any office of the Canadian National Railways or from the General Passenger Agent, 108 West Adams Street, Chicago.

The Ohio State Medical Association is sponsoring a special train to the Portland Session for the accommodation of its members and friends. Information concerning this train may be secured from Mr. Don K. Martin, Executive Secretary, Ohio State Medical Association, 131 East State Street, Columbus, Ohio.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock in the morning, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of March 25 to 30 will be as follows:

March 25. "Medical News," by Dr. J. F. Hammond.
March 26. "Consumption Cure Quackery," by Dr. Arthur J. Cramp.
March 27. "Teaching Children How to Like Proper Food," by Dr. R. G. Leland.
March 28. "Teaching Children How to Like Proper Food" (continued), Dr. R. G. Leland.
March 29. "Why Leprosy is a Dread Disease," by Dr. James Nall.
March 30. "Plastic Surgery," by Dr. Morris Fishbein.

Evening Health Hints from Hygeia at 8 o'Clock, Central Standard Time

March 25. Care of Children's Teeth.
March 26. Vision.
March 27. Detecting Cancer.
March 28. Health in Old Age.
March 29. Steering Children Straight.
March 30. Indigestion and Skin Disease.

3. Ebaugh, F. G.: Medical Aspects of the Crime Situation, Colorado Med. **26**: 47 (Feb.) 1929.
4. Crime and Punishment, Ment. Hyg. Bull. **7**: 7 (Jan.) 1929.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bill Enacted. — Senate bill 34, providing for the sexual sterilization of certain inmates of the state hospital for the insane, has become a law.

Bill Introduced.—House bill 143 authorizes the board of supervisors of each county to enforce regulations for the establishment and operation of tuberculosis hospitals and sanatoriums.

Bills Passed.—Senate bill 30, appropriating $100,000 for the erection of the Arizona Children's Colony for the care and education of mentally defective children, has been passed by the house and the senate. House bill 60, creating a state barber and cosmetology board and regulating the occupation and practice of barbers, hairdressers, cosmeticians and electrologists, has been passed by the house and the senate. House bill 95, prohibiting the use of the name drug store or kindred name for places in which a registered pharmacist is not employed, has been passed by the house and the senate.

ARKANSAS

Bill Introduced. — Senate bill 435 creates the Arkansas Construction Commission, for the purpose of constructing and equipping adequate buildings for the hospital for nervous diseases and the tuberculosis sanatorium.

CALIFORNIA

Professor Caronia Comes to California for a Year.—Under the provisions of a fund granted by Mr. Giannini of the Bank of Italy, San Francisco, Prof. Giuseppi Caronia, head of the Institute of Epidemiology at Naples, has arrived at the University of California Hooper Foundation for Medical Research to spend a year in research on the origin of measles and scarlet fever. Professor Caronia is well known for research in scarlet fever, measles, typhoid, and leishmaniosis. He has published articles on the etiology of scarlet fever and measles. It is expected that further light will be thrown on these subjects through the continuation of his work in California.

Society News.—The state department of health reports an increase in smallpox, 401 cases having been reported, in the first seven weeks of 1929. The largest foci are in Alameda, Humboldt, San Bernardino, Tulare, Stanislaus, Butte, Los Angeles and Glenn counties. —— The meeting of the Pasteur Society of Central California, San Francisco, February 27, was attended by 110 members and guests. The symposium on tuberculin was presented by Jacob Traum, D.V.M., University of California College of Agriculture, Berkeley; Dr. Zera E. Bolin, University of California Medical School; Dr. Frederick Eberson of the Hooper Foundation for Medical Research, and Dr. Robert A. Peers of the Colfax School for the Tuberculous. Thirty-six new members were elected to the society and Capt. Virgil H. Cornell, medical corps, U. S. Army, now at the Letterman General Hospital, was made president for the year, and M. S. Marshall, Ph.D., Hooper Foundation for Medical Research, secretary.

Personal.—James W. McBain, Ph.D., professor of chemistry, Stanford University, Palo Alto, and Mary Evelyn Laing, Sc.D., assistant professor in the same department, were married at the Stanford Memorial Church, January 1. —— Dr. John Howard Hall has succeeded Dr. Walter W. Cress as health officer of Sacramento.——Dr. Edwin Wiley Reeves, Salinas, has succeeded Dr. Roscoe C. Main as health officer of Monterey County; Dr. Main will go to Santa Barbara as health officer.——Charles Gurchot, Ph.D., has been appointed research assistant at Stanford University School of Medicine in the department of pharmacology; Dr. Thomas Addis, professor of medicine, is on leave for one year, acting as guest physician in the hospital of the Rockefeller Institute for Medical Research. ——Dr. Everett Morris has resigned as tuberculosis specialist to the U. S. Veterans' Hospital at San Fernando to take charge of the new Fresno County Tuberculosis Sanatorium at Fresno. ——Dr. Lawrence Wing, Eureka, has succeeded Dr. William J. Quinn as health officer of Humboldt County.——Dr. Andrew B. Stockton has been appointed full-time instructor of therapeutics in the department of pharmacology, Stanford Univer-

sity School of Medicine, San Francisco. This instruction will be supplemented by elective work consisting of bedside conferences under Dr. Russell V. A. Lee, and by lectures and demonstrations on selected topics by Dr. Frederick Proescher of the Agnew State Hospital, who was recently appointed lecturer in therapeutics. It is hoped to develop the subject of therapeutics by combining instruction with research in clinical therapeutics.——Dr. Warren F. Fox, Pasadena, has been made president of the Southern California Public Health Association for the year, and Dr. John J. Sippy, Stockton, president of the Northern California Public Health Association.

COLORADO

Bill Passed.—House bill 43, as amended, providing for an annual license fee of $2 for medical practitioners, has passed the house.

Bill Introduced.—House bill 461 would require all private hospitals, psychopathic hospitals, homes for mental defectives, sanatoriums, maternity institutions, tuberculosis hospitals and homes for children to be licensed by the Colorado state board of health.

CONNECTICUT

Bill Passed.—Senate bill 147, providing for the reporting to the state department of health by physicians of certain occupational diseases and making such reports admissible in court or compensation courts, has been passed by the senate.

DELAWARE

Bill Introduced.—House bill 120 directs the recorder of deeds of each county to deliver to the state board of health all books, including indexes and loose leaf binders, relating to births, deaths and marriages.

Bill Passed.—House bill 271, amending the law relating to the board of health by providing for an additional member of the board, who shall be a doctor of dental surgery, has been passed by the house and the senate.

DISTRICT OF COLUMBIA

Dr. White Gives the Kober Lecture.—The Medical Society of the District of Columbia has chosen Dr. William Allen White, superintendent of St. Elizabeth's Hospital, to give the annual lecture of the Kober Foundation, at Georgetown University, March 25. His subject will be "The Social Significance of Mental Disease," illustrated with lantern slides.

Personal.—Dr. Ales Hrdlička has been elected president of the Washington Academy of Sciences.——Lieut. Comdr. George W. Calver of the navy medical corps has been designated official physician to the House of Representatives.——Dr. William A. White was guest of honor at a dinner at the University Club, Baltimore, March 15, following which he gave an address on "The Psychiatrist Looks at Crime."

Hospital News.—The Eastern Dispensary and Casualty Hospital will erect a four-story $200,000 building containing 100 rooms. A feature of the new hospital will be a public drug store on the ground floor.——According to the American Hospital Association, a new medical and surgical building is under construction at St. Elizabeth's Hospital which will cost about $875,000.——Georgetown University Hospital has opened a maternity department of about seventy-five beds in the wing erected a year ago and since used for general hospital purposes. The maternity department will occupy three of the five floors in the wing and will bear the names of the late E. Francis Riggs and Dr. George M. Kober, who recently retired as dean of the medical school after many years' service. The old maternity division was in the Riggs Memorial Building.

FLORIDA

Society News.—Dr. Edward C. Rosenow, Mayo Clinic, Rochester, Minn., was a guest of honor at the annual banquet of the Dade County Medical Society, January 4.——The Hillsboro County Medical Society held its annual banquet, January 17, the speaker being Dr. Frederick J. Waas, president of the state medical society, on "Organized Medicine and the Objectives of the Component Society."——At the quarterly meeting of the Leon-Gadsden-Liberty-Wakulla-Jefferson County Medical Society, Tallahassee, Dr. Turner Z. Cason, Jacksonville, spoke on "Cardiac Disease in the Syphilitic," and Dr. Wilfred M. Shaw, "Discovery and Early History of X-Ray."——The Pinellas County Medical Society was addressed, recently, by Dr. William E. Sanders of Des Moines, Iowa, on "Carcinoma with Special Reference to Malignancy in Women."

ILLINOIS

Bills Introduced.—Senate bill 221 prohibits any experiment on a living animal to ascertain or demonstrate any fact in physiology or pathology or for any other purpose. It prohibits the keeping of animals for such experimentation and gives any "duly constituted officer or authority" the right to make a full inspection of the premises while classes are being held and at any other reasonable time. House bill 343 would empower the department of registration and education to appoint a board of examiners for the chiropractors.

Chicago

Fifth Ludvig Hektoen Lecture.—The Institute of Medicine of Chicago announces that the fifth Ludvig Hektoen lecture of the Billings Foundation will be given at the City Club, Friday evening, March 29, by Dr. Homer F. Swift of the Rockefeller Institute for Medical Research, New York, on "Rheumatic Fever."

Dr. Park Will Give the Gehrmann Lectures.—The College of Medicine of the University of Illinois announces that the Adolph Gehrmann Lectures will be delivered by Dr. William H. Park, director, bureau of laboratories, New York City health department, April 1, on "Use of Diphtheria Antitoxin and Toxin in Treatment and Immunization"; April 2, "Use of Antipneumococcic Serum in Treatment of Pneumonia and the Significance of Types of Pneumococci"; April 3, "Active Immunization in Animals and Human Beings Against Tuberculosis." The lectures will be at 1 p. m., in the Research and Library Building, 1817 West Polk Street. Physicians are invited.

Society News.—The Chicago Council of Medical Women will be addressed, April 5, at the Medical and Dental Arts Club by Dr. Cassie B. Rose on "Pyelography in Diseases of the Urinary Tract."——Dr. Richard H. Jaffe addressed the Chicago Medical Society, March 13, on the pathology of nephrosis, and Dr. George W. Crile, Cleveland, March 6, on "Interdependence of the Suprarenals, the Thyroid Gland and the Sympathetic Nervous System with Clinical Application"; at a joint meeting, March 20, with the Chicago Urological Society, the speakers were Drs. Joseph S. Eisenstaedt, Robert H. Herbst, Herman L. Kretschmer, Budd C. Corbus, Victor D. Lespinasse and Daniel N. Eisendrath.——Drs. Harry W. Woodruff, Joliet, Ill., and William F. Moncreiff discussed strabismus before the Chicago Ophthalmological Society, March 18.——The Chicago Society of Internal Medicine will be addressed, March 25, at the City Club by Dr. William N. Boldyreff, Battle Creek, Mich., on "So-Called Duodenal Regurgitation."——A committee met at the City Club, March 18, to consider plans to oppose the antivivisection bill which was introduced in the Illinois legislature by Senator Courtney, March 7. Dr. Andrew C. Ivy, 303 East Chicago Avenue, was secretary of the committee.

INDIANA

Bills Enacted.—The following bills have become laws: House bill 177, requiring three years' experience and eighteen months' schooling for registered assistant pharmacists; house bill 304, amending the nurses' registration law by providing that two of the three years of training required of nurses shall be spent in a hospital and one year in a recognized college, university or normal school, and house bill 314, authorizing utilities, or any city or town operating a utility, to furnish utility service free of charge to hospitals which accept and care for charity patients. House bill 189, amending the law concerning insanity inquests so as to allow medical examiners 10 cents a mile for attending hearings or making examinations.

Bills Passed.—The following bills have been passed by the house and the senate: House bill 231, authorizing dental inspections of school children, treatment to be optional with parents, and house bill 430, prohibiting the possession, except by a registered pharmacist or by reason of lawful prescription, of cannabis sativa and indica. Senate bill 26, providing that when an inmate of a state hospital for the insane is found to to have an estate not necessary for the maintenance of dependents, the expense incurred by the state shall be a lien against such estate; house bill 141, appropriating $500,000 for the building of a tuberculosis sanatorium in southern Indiana, and house bill 176, providing that the latest revision of the United States Pharmacopeia and the National Formulary and subsequent revisions thereof shall be recognized by the Indiana Board of Pharmacy as standard for the purity and strength of drugs. House bills 141 and 176 were vetoed by the governor.

Society News.—The Elkhart County Medical Society was addressed, March 7, by Dr. Lewis J. Pollock, professor of neurology, Northwestern University Medical School, Chicago, on "Causes and Differential Diagnosis of Paraplegia."——The Jay County Medical Society was addressed, March 1, by Dr. Charles A. Paddock, Portland, on "Gallbladder Diseases."——Dr. Leon G. Zerfas of the Eli Lilly Company, Indianapolis, spoke before the Henry County Medical Society, New Castle, February 26, on new medical discoveries.——The March meeting of the Howard County Medical Society, Kokomo, was addressed by Dr. Charles Adams on "The Maxillary Sinus."——Edward C. Kendall, Ph.D., Mayo Clinic, Rochester, Minn., addressed the St. Joseph Valley section of the American Chemical Society at Notre Dame, February 20, on research on the thyroid gland.——The Indianapolis Medical Society and the staff of the city hospital held a joint meeting, March 12, at the hospital to discuss "The Clinical Use of Sodium Amytal." The March 19 meeting was a symposium on the smoke menace by Dr. Clarke Rogers, Mr. Fred Barton, city smoke inspector, Ira Derby of the Republic Creosoting Company, and Dr. Herman G. Morgan.——The Muncie Academy of Medicine, Muncie, was addressed, March 5, by Dr. Louis J. Hirschman, Detroit, president of the Michigan State Medical Society, on "Pitfalls in the Diagnosis of Colitis."——The new five story wing of the New Highland Sanitarium, Martinsville, was destroyed by fire, March 11; the patients were not injured.

IOWA

Bill Passed.—House bill 243, creating a state board of eugenics to determine the necessity for sexual sterilization of feebleminded, insane or syphilitic persons, habitual criminals, moral degenerates and sexual perverts, whether confined in state institutions or at large, has been passed by the house.

Bills Introduced.—Senate bill 344 authorizes the state department of health to accept financial aid from the U. S. Government for the purpose of assisting in carrying on public health work in the state. Senate bill 391 permits the board of supervisors of any county to contract with any reputable physician to furnish medical attention to the indigent poor in any city or township. Senate bill 393 would authorize the county board of supervisors to adopt the county unit plan for public health work, to coordinate and correlate all public health activities within their county, and to create a county board of health.

Illegal Practitioners Fined.—Emma D. Sterman, Peru, widow of Dr. Wilbur F. Sterman, was found guilty of practicing medicine without a license and recently fined $100. The defendant is said to have maintained her husband's office since his death some years ago and her defense against the charges was that she was acting as a graduate nurse, the state having shown that she was not registered in Iowa. Walter Hawkins, Lake City, was recently arrested on a charge of practicing medicine without a license and confined in jail until trial at Humboldt, January 10, when the judge fined him $300. The fine having been remitted, Hawkins is said to have left for Chicago. Another conviction reported by the *Journal of the Iowa State Medical Society* for practicing without a license was that of W. F. Hughey.

Society News.—The Johnson County Medical Society was addressed, January 2, by Dr. Earle P. Scarlett on "Anemia in Nephritis," and by Dr. Nathaniel G. Alcock, Iowa City, on "Urologic Diagnosis in Relation to General Diagnosis."——Dr. Philip C. Jeans, Iowa City, among others, addressed the Lee County Medical Society, recently, at Fort Madison, on observations of certain aspects of nutrition in children.——The Marshall County Medical Society, Marshalltown, was recently addressed by Dr. Frank R. Peterson, Iowa City, on the gallbladder, and Dr. Dean M. Lierle, Iowa City, on bronchoscopy.——The Waterloo Medical Society was addressed, January 16, by Dr. Charles H. Neilson, St. Louis, on the nervous patient.

KANSAS

Bill Passed.—House bill 401, providing that in every county having a population of not less than 130,000 the coroner may appoint two deputies, has been passed by the house.

Bills Introduced.—Senate bill 407 and House bill 586 amend the medical practice act by providing that the board of medical registration and examination shall hold regular meetings on the third Tuesday in June and the second Tuesday in December. House bill 385 directs the state board of administration to provide modern dental care and treatment for all persons confined in, or who are patients of, the state hospitals or charitable and penal institutions.

LOUISIANA

Decrease in Death Rate.—Reports just released by the U. S. Department of Commerce indicate that the Louisiana death rate in 1927 was 1,235 per hundred thousand of population, as compared with 1,263 in 1926. The principal decreases in the rates were from influenza, pneumonia, nephritis, tuberculosis and heart disease. There were increases in that year from measles, enteritis, pellagra and malaria.

Society News.—Dr. Carl H. Davis, Milwaukee, addressed a joint meeting of the New Orleans Gynecological and Obstetrical Society and the Orleans Parish Medical Society, January 18, and presented motion pictures on the management of labor.——Dr. Ivy D. Boyett of Oxford, Miss., has been appointed health officer of Iberville Parish.——Dr. James T. Nix, Jr., has been appointed president of the executive committee of the Hotel Dieu, New Orleans, for the ensuing year.——Dr. Harry H. McClellan, Dayton, Ohio, recently came to Baton Rouge to confer with the governor and officers of the state hospitals with a view to establishing a social welfare department to keep in touch with discharged patients, and to acquire more modern equipment for the treatment of mental diseases. Dr. McClellan is medical superintendent of the state hospital at Dayton, Ohio.

MAINE

Bill Enacted.—House bill 1168, amending the law concerning osteopathy by including surgery in the list of subjects in which an applicant is examined and by further providing that no person heretofore registered under the provisions of the law relating to osteopathy shall practice surgery or obstetrics without passing an examination in surgery, has become a law.

Bills Introduced.—House bill 1437 prohibits any establishment which employs fifteen persons from hiring any person who has not been successfully vaccinated or revaccinated within two years, or to the satisfaction of the local board of health. House bill 1438 requires vaccination of teachers, employees and pupils in public, private or parochial schools. House bill 1512 amends the law relating to the registration of nurses by providing that the members of the board of nurse examiners shall each have been graduated from a different school of nursing, shall have had after graduation at least three years' experience in nursing and in addition at least two years' experience in teaching nurses, shall have been registered by the board of registration of nurses of this state and shall be citizens of the United States. House bill 1571 provides for the payment of an annual license fee by apothecaries.

MARYLAND

Bill Passed.—House bill 66, providing for an increase in the membership of the state board of health by the addition of a doctor of dental surgery, has been passed by the house and the senate.

Society News.—The Baltimore City Medical Society was addressed, March 15, among others, by Drs. Howard M. Bubert on "'Place' Asthma," and by Dr. Maurice C. Pincoffs on "Paroxysmal Hypertension Due to Adrenal Tumor."——The Maryland League for Crippled Children held its first meeting, March 11, in Baltimore.

Bills Introduced.—House bill 312 provides that in towns of not over 3,000 population drug stores and pharmacies may be left in charge of unregistered clerks for the sale of all articles not requiring the services of a pharmacist and that the employment of pharmacists and assistant pharmacists in such stores is for the express purpose of compounding prescriptions or selling and dispensing poisonous drugs. Senate bill 85 regulates the sale of caustic acids, caustic alkalis, and preparations thereof, and mineral or chemical salts intended for household and agricultural uses, by providing that bottles, packages or containers must be labeled with the name of the article, the name and place of business, the seller and the word "poison."

Personal.—Robert W. Hegner, Ph.D., professor of protozoology, Johns Hopkins University School of Hygiene and Public Health, Baltimore, has been granted a year's leave of absence from May 1 to serve as visiting professor at the University of the Philippines, Manila, P. I.——Dr. Stewart B. Sniffen, White Plains, N. Y., has been appointed full-time psychiatrist to the clinic of the Mental Hygiene Society of Maryland; Dr. Sniffen recently has held a fellowship at the Institute for Child Guidance in New York under the Commonwealth Fund.——Dr. Thomas O. Otto, Jr., resident at the Union Memorial Hospital, Baltimore, sailed, March 20, with Ex-Governor Pinchot of Pennsylvania, on a nine months' yachting trip among the islands of the Pacific.

MASSACHUSETTS

Bill Enacted.—The following bill has become a law: House bill 175, providing that two or more towns may by vote form a district to employ a health officer.

Society News. — Dorothy Swain Thomas, New York, addressed the Massachusetts Psychiatric Society, Boston, February 27, on "New Technics for Studying Social Behavior," and Dr. Charles Macfie Campbell on "Study of Environmental Factors in the Schizophrenic Group."——Dr. Louis E. Phaneuf, Boston, addressed the section on gynecology and obstetrics of the New York Academy of Medicine, February 27, on uterine prolapse.

Personal.—Dr. Henry P. Walcott resigned from the presidency of the Massachusetts General Hospital, February 6, after more than thirty-three years of service in that institution and became honorary president in his ninety-first year. Dr. Walcott is an ex-president of the Massachusetts Medical Society and of the state board of health, and was formerly chairman of the Metropolitan Water Commission.——The late Dr. Lucien Howe, well known ophthalmologist, is said to have enrolled as a student at Harvard University in his eightieth year in order that he might brush up on chemistry.——Dr. Annina C. Rondinella, Wellesley, was bequeathed $50,000 in the will of her late friend, Miss Mary A. Dobbins of Philadelphia.——Dr. George H. Bigelow, state commissioner of health, lectured at the Johns Hopkins University School of Hygiene and Public Health, Baltimore, March 12, on "What Massachusetts Is Doing About Cancer."

MICHIGAN

Bill Introduced.—Senate bill 239 amends the law relating to the practice of osteopathy by requiring two years of college work before the study of osteopathy is begun.

Bill Passed.—House bill 26, amending the law prohibiting any person sick with a communicable disease from being brought into any part of Michigan without the special permit of the board of health by providing that any county may transport persons to and from county hospitals and sanatoriums without the special permit of the board of health, has been passed by the house and the senate.

The Beaumont Lectures. — The Wayne County Medical Society, Detroit, announces that the three Beaumont lectures will be given by Alfred Newton Richards, Sc.D., professor of pharmacology, University of Pennsylvania School of Medicine, Philadelphia, the evening of March 25; 11 o'clock, March 26, and 8:30 the same evening, on "Methods and Results of Direct Experiments Concerning the Function of the Kidney."

Society News.—The outbreak of smallpox at Grand Rapids amounted to twelve cases on February 27.——Clarence C. Little, LL.D., president of the University of Michigan, addressed the University of Wisconsin Medical Society, Madison, March 12, on "The Genetics of Cancer."——Dr. Elliott P. Joslin, clinical professor of medicine, Harvard University Medical School, Boston, addressed the Wayne County Medical Society, March 19, on "Present Thoughts on Diabetes and Their Application to Treatment"; the society was addressed, March 12, by Dr. Norman E. Clarke, Detroit, on "The Heart in the Toxic Goiter Syndrome."

MINNESOTA

Bills Introduced.—House bill 759 requires every practitioner of the healing art who attends or treats any child of preschool age who is not attending school to report to the department to which communicable diseases are required to be reported any defect, injury or disease of a continuous nature liable to handicap the child permanently. House bill 765 amends the law relating to the qualifications of applicants to practice the profession of nursing by providing that after Sept. 1, 1929, such applicants must have an education equivalent to one year of high school, and that after Sept. 1, 1935, such applicant must have an education equivalent to two years of high school. Senate bill 624 amends the law relating to the form and contents of birth certificates by requiring the attending physician or midwife to specify "any abnormal physical condition or defect, describing the same" in addition to the information required by the present law.

Society News.—The St. Louis County Medical Society was addressed in February by Dr. George E. Fahr, Minneapolis, on "Functional Heart Disease of the Systolic Murmur," and by Dr. William S. Middleton, Madison, Wis., on "Industrial Factors in the Production of Lung Diseases."——Dr. Alexander R. Colvin, St. Paul, addressed the Minneapolis Surgical Society, February 7, on "The Manifold Nature of Osteomyelitis."——The Rice County Medical Society was addressed at Faribault, January 24, by Dr. William H. Rumpf, Jr., Minneapolis, on "Maternal Mortality in Minnesota."——Dr. Thayer C. Davis, Wadena, has been made president of the Upper Mississippi Medical Society for the ensuing year; the society will hold its fall meeting at Little Falls.——Dr. Charles L. Scudder, Boston, addressed the Hennepin County Medical Society, Minneapolis, March 12, on "Certain Phases of the Treatment of Fractures," and Dr. Thomas S. Roberts, professor of ornithology and director of the zoological museum, University of Minnesota, on "Minnesota Wild Animal Life," illustrated with moving pictures.——Dr. Arnold Schwyzer, St. Paul, addressed the Minnesota Academy of Medicine, Town and Country Club, March 13, on "Chronic Mastitis."

MISSOURI

Bill Introduced.—House bill 696 creates a state board of examiners for the licensing of hairdressers, cosmetologists and beauty specialists.

Bills Passed.—House bill 112, amending the optometry act by providing that the state board of optometry examiners may refuse to issue or revoke a license to practice for (1) canvassing or peddling or soliciting business in a public place, or (2) habitual drunkenness or drug addiction, has been passed by the house. House bill 401, authorizing any county with a population of not less than 200,000 nor more than 750,000 to establish a county hospital for feebleminded minors or minors with any form of insanity or mental deficiency, has passed the house.

Dr. Grindon Honored. — The St. Louis Medical Society, Washington University School of Medicine and St. Louis University School of Medicine held a jubilee at the home of the medical society, 3839 Lindell Boulevard, March 9, to celebrate the fiftieth anniversary of the graduation in medicine of Dr. Joseph Grindon, professor of dermatology and director of the department, St. Louis University Medical School. A plaque of the guest of honor and a leather bound book containing the name of each guest and contributor were presented. There was a reception and smoker. Dr. Grindon is a past president of the St. Louis Medical Society and the St. Louis Dermatological Society, and is now president of the American Dermatological Association. He is on the staff of various St. Louis hospitals and the author of a textbook on diseases of the skin.

MONTANA

Bills Passed.—The following bills have passed the house and the senate: House bill 107, authorizing the state board of health to make such rules and regulations as it deems necessary for the sanitary provisions of tourists' camp grounds, and house bill 209, declaring that hereafter all contracts or agreements for the performance of personal services in connection with the preparation for burial or cremation, or with the burial or cremation, of human bodies, made prior to the death of the persons whose bodies are to be buried or cremated, when the contract or agreement is not made in contemplation of imminent death, are against the public policy of the state. House bill 126, creating the Montana State Examining Board of Beauty Culturists and regulating the occupation of hairdressers and cosmetologists.

NEVADA

Bill Introduced.—House bill 127 provides for the registration of all births and deaths in the state.

NEW HAMPSHIRE

Bill Passed.—House bill 260, amending the compulsory vaccination law by providing that duly registered physicians may issue vaccination certificates, has been passed by the house. Under the present law only physicians who are approved by the board of health may issue such certificates.

NEW JERSEY

Bill Passed.—House bill 187, making it lawful for county hospitals to contract with municipal hospitals for services such as heat, laundry and food, has been passed by the house.

Society News.—The Atlantic County Medical Society was addressed at the Hotel Chalfonte, Atlantic City, March 8, on surgical treatment of gastro-duodenal ulcers.——The Camden County Medical Society held a symposium, February 14, on procaine as an anesthetic, the speakers being Drs. David F. Bentley, Jr., and Irvin E. Deibert.——The Hudson County Medical Society was addressed, February 5, by Dr. Howard M. Clute, Boston, on "The Thyroid Adenoma."——The Osler Clinical Society, Jersey City, was recently addressed by

Dr. Charles Gordon Heyd, New York, on goiters, illustrated with lantern slides.——Dr. Alan DeForrest Smith, New York, addressed the Passaic County Medical Society, February 14, on "Pain in the Low Back Caused by Structural Variations in the Spine."

Bills Introduced.—Senate bill 198 empowers the department of institutions and agencies to revoke the licenses of private nursing homes. House bill 290 would create a state board of surgical examiners, to consist of four general surgeons, two gynecologists, two urologists, one orthopedist, one ophthalmologist and otologist, one laryngologist, one rhinologist, one pathologist, one obstetrician, one roentgenologist and one anesthetist to examine and license persons to practice general surgery or any of its branches, as gynecology, obstetrics, urology, orthopedic surgery, ophthalmology, otology, laryngology, rhinology, orthopedic surgery, proctology, roentgenology, pathology or anesthesia. Applicants to practice any of these specialties must show, in addition to graduation from a reputable medical college, a certain number of years of postgraduate study, differing as to the specialty desired, and varying from four years of postgraduate work as in the case of general surgery to two years of postgraduate work in the case of obstetrics. The board would confer on successful applicants such degrees as master of surgery or master of gynecology, depending on the specialties. The proposed act specifically sets out that "these provisions shall apply to all persons professing or attempting to cure any surgical disease by means of osteopathy or chiropractory or any of the so-called systems, faith curisms, mind healing, laying on of hands and other similar systems." House bill 292 creates a board of chiropractic examiners and regulates the practice of chiropractic. Chiropractic is defined to be, "the science of locating and adjusting the subluxations of the articulations of the human spine, and other incidental adjustments," and licenses to practice chiropractic are limited to that.

NEW MEXICO

Bills Enacted. — The following bills have become laws: Senate bill 77, providing for instruction in the public schools on the effects of alcoholic drinks and narcotics; senate bill 91, creating a state board of optometry and regulating the practice of optometry; senate bill 114, providing for the employment of additional persons to aid county health officers, and house bill 176, prohibiting the possession, sale or distribution of peyote *(Lophophora williamsii)* or anhalonium.

Bills Passed.—House bill 254, making it unlawful to import, plant, cultivate, grow or possess or to barter, sell or distribute any cannabis indica and further providing that cannabis indica may be imported for medicinal purposes only by licensed pharmacists and physicians, has been passed by the house and the senate. Senate bill 66, creating a state board of barber examiners and regulating the practice of barbering, has been passed by the senate.

NEW YORK

Bills Enacted. — The following bills have become laws: Senate bill 90, amending the mental hygiene law by defining a "resident" as a person who shall have lived in New York at least one year continuously, exclusive of the time spent in public or private institutions, and house bill 628, amending the workmen's compensation law by classifying as compensable occupational diseases, injuries from radium, radon or x-rays.

Bills Introduced.—Senate bill 1123 and House bill 1472 abolish general health districts and provide for county health districts. House bill 1632 amends the law in relation to the termination of licenses to practice medicine held by those who have not attained citizenship by providing that on failure of such licensees within ten years from the date of the issuance of the license to furnish evidence of actually having become a citizen, the license shall terminate and the registration shall be annulled. House bill 1494 provides that the board of supervisors of Monroe County may create the office of county dental director. House bill 1506 provides for the creation of a board of barber examiners and regulates the practice of barbering. House bill 1528 creates a board of examiners for dental technicians.

Bills Passed.—The following bills have passed the house and the senate: House bill 327, amending the education law in regard to school hygiene districts by providing that sums may be appropriated for assistants to the director of school hygiene; house bill 679, providing that a person not vaccinated shall not be admitted or received into a school in a city having a population of 15,000 or more inhabitants; house bill 77, making the sale of any beverage containing wood alcohol or other poisonous substance a felony, punishable by a maximal imprisonment of five years, and house bill 566, amending the health law by making it a felony to sell or distribute habit-forming drugs, and providing for imprisonment not to exceed ten years. House bill 459, amending the poor law by providing that a tuberculous poor person shall not be deemed to be settled in any town in Green County until he has lived there five years, has been passed by the house and the senate.

New York City

Arsenic and Eczema. — Thirty per cent of all cases of eczema studied by the research department of the New York Skin and Cancer Hospital over a three year period are said to have been due to arsenic poisoning. This research is said to have been confirmed by the U. S. Bureau of Drugs and Insecticides and accepted by several state boards of health. Arsenic poisoning is frequently due to industrial contact with arsenic or to accidental contamination by spraying with insecticides such foods as apples, grapes, cherries, peaches, celery, lettuce, peas and beans. Tobacco is also a frequent source of arsenic poisoning.

Tuberculosis Largely a Home Problem. — There was an increase in the prevalence of tuberculosis in New York last year, 11,614 new cases being reported, as compared with 10,873 in the year 1927. At the annual meeting of the Association of Tuberculosis Clinics in New York, it was reported that the total attendance of old and new patients was 87,057 last year, while nurses' visits to the homes numbered 58,291. Among 28,962 new admissions to the clinics were 6,128 patients who had tuberculosis. The remainder examined were persons exposed to infection by tuberculous patients, and they were examined regularly to prevent the spread of the infection. New York has seventeen tuberculosis clinics conducted by the department of health, four conducted by the former department of Bellevue and Allied Hospitals, and eight by private hospitals. Tuberculosis in New York is largely a home problem, Health Commissioner Wynne said, as only 15 per cent of the registered patients are hospitalized.

Personal.—Dr. Robert A. Hatcher, professor of pharmacology, Cornell University Medical College, was awarded the honorary degree of master of pharmacy at the Founder's Day exercises at the Philadelphia College of Pharmacy, February 22. ——Dr. Carl Koller has been awarded the Kussmaul Medal of the Faculty of Heidelberg University for work in Vienna in 1884 on the use of cocaine as a local anesthetic in opthalmology.——Dr. Valeria H. Parker, New York, director of the field extension work of the American Social Hygiene Association, gave the principal address at the "state day" celebration of the Indiana Federation of Women's Clubs at South Bend, March 2, on "The Yesterday, Today and Tomorrow of Women's Clubs."——Dr. Meyer R. Robinson has been appointed chief in gynecology at the Beth Moses Hospital, Brooklyn.——Dr. Harry P. Swift has been reappointed by the mayor a member of the board of health, his colleagues being the commissioner of health, Dr. Wynne, and the commissioner of hospitals, Dr. William Schroeder, Jr.

What the Health Department Expects of Practitioners. —The department of health believes that much of the work it does now can and ought to be done by the private practitioner. The work that remains to be done can be distributed so that the health officer and the practitioner each does his share. There are three important projects which physicians can immediately undertake: (1) the protection of children against diphtheria; (2) the examination of school children and the correction of defects found, and (3) the examination of persons exposed to tuberculosis by contact with cases. The department stands ready to entrust more preventive work to private practitioners. When that can be done to a larger extent, it can proceed with educational work to stimulate the public to avail itself of the service which the profession can give. The department believes that the physicians' point of view must change so that they consider themselves as "quasi health officers," and that if they do not engage in preventive medicine some other agency will take away their opportunity.

Society News.—The Association for Personality Training held an institute and conference, in conjunction with the New York University Extension Division, from Nov. 19, 1928, to Feb. 25, 1929. The association aims to encourage study and research in this field. Hugh Hartshorne, Ph.D., is president, and a number of physicians are on the council.——Dr. Jacques Maliniak has been made president of the International Medical Club of New York for the year, and Dr. Frank Herriman, secretary. The club held its annual dinner, February 28; the speakers were Drs. William Schroeder, Jr., commissioner of hospitals; Antonin Prececht of the Medical Faculty of Charles

University of Prague, and Dr. Herbert S. Dickey.——The New York Gastro-Enterological Association will be addressed, April 1, at the Academy of Medicine by Dr. Damaso Rivas of the University of Pennsylvania on "Diagnosis and Treatment of Intestinal Parasitism with Special Reference to the Intra-Intestinal Thermo Method"; by Dr. George Woolsey on "Intestinal Obstruction," and by Dr. Anthony Bassler on "The Colopathies." The discussants will be Drs. Walter A. Bastedo, William E. Deeks, Charles Eastmond, Ernest E. Smith, Max Einhorn, John L. Kantor and Albert F. R. Andresen. All physicians are invited.——The New York Physicians' Golfing Association held its annual dinner and business meeting, February 26, when the season's prizes were awarded to Dr. Lewis K. Neff for the handicap championship; to Dr. Martin L. Sowers for the two lowest gross scores, and to Drs. Lawrence D. Alexander, Jr., and Howard T. Langworthy, who tied for the two lowest net scores.——Dr. Samuel B. Burk addressed the Society of Medical Jurisprudence, March 11, on "Development of the Law of Criminal Abortion."——The Eastern Medical Society of New York held a symposium on birth control, March 15, the speakers being Margaret Sanger, and Drs. Robert L. Dickinson, Hannah M. Stone, Stuart Mudd, Abraham J. Rongy and Abraham A. Brill.——Cols. Edward P. Wolfe and Albert E. Truby, medical corps, U. S. Army, addressed the section of historical and cultural medicine of the New York Academy of Medicine, March 13, on "Genesis of the Medical Department of the U. S. Army."——Dr. Charles R. Brooke has been made president of the New York Electrotherapeutic Society for the ensuing year.——Twenty-three hospitals in the Metropolitan area are supplied with surgical dressings by volunteer workers of the New York County chapter of the Red Cross.

NORTH DAKOTA

Bill Passed.—Senate bill 101, requiring the licensing of dental hygienists by the board of dental examiners, has been passed by the senate.

OHIO

Another Endowed School of Nursing.—The school of nursing of Western Reserve University, Cleveland, has received the endowment made five years ago by Mrs. Chester C. Bolton, which has been held in trust and, in the meantime, been increased to $1,500,000. This is to be called the Mary Payne Bingham Fund, in memory of Mrs. Bolton's mother, and is separate from a gift by the same donor made two years ago to build a nurses' home. The school of nursing at Western Reserve is an independent unit of the university on the same basis as other professional schools. Western Reserve and Yale are the only endowed university nursing schools in this country.

Bills Introduced.—Senate bill 243 amends the workmen's compensation act by providing that the term "injury" as used in the act "shall include any injury received in the course of employment, or any disability caused by illness or disease arising out of or with the direct results of the employment." House bill 83 amends the law in relation to osteopathy by requiring applicants for a license to practice osteopathy to present a certificate from a reputable college showing that the applicant has had two or more years of premedical college work in addition to the professional course. House bill 414 prohibits the granting of a certificate to teach in the schools of the state to any person who uses cigarets or narcotic drugs.

Health at Youngstown.—Telegraphic reports to the U. S. Department of Commerce from sixty-four cities with a total population of about 30 million, for the week ending March 9, indicate that the lowest mortality rate (6) was for Youngstown, and that the mortality rate for the group of cities as a whole was 14.6. The mortality rate for Youngstown for the corresponding week last year was 8.4, and for the group of cities, 14.2. The annual rate for these sixty-four cities for the first ten weeks of 1929 is 16.9, as against 13.8 for the corresponding weeks last year. The highest mortality rate (23.1) was for Memphis. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

Personal.—William M. Thomas, assistant secretary of the Ohio State Medical Association, died, February 15, after a long illness.——Dr. Harold C. Messenger has been succeeded as physician at the Greene County Infirmary by Dr. Albert D. DeHaven, health commissioner of Xenia.——Dr. Theodor Herwig has resigned as research specialist at the Springfield Lake Sanatorium, East Akron.——Dr. Edward W. Misamore, for five years health commissioner of the city of Findlay, has resigned to engage in private practice.——Dr. Willoughby D. Bishop, Hollansburg, has been elected deputy health commissioner of the Darke County health unit and will associate with Dr. Milford E. Barnes, who for about two years not only has been head of the unit but at the same time has carried on a training school for health workers supported jointly by the state department of health and the Rockefeller Foundation.——Edward Tiffin, first governor of Ohio, was a physician, having practiced at Charles Town, W. Va., before coming to Ohio.——Dr. William Eberle Thompson of Bethel, who is still in practice at the age of 93, has lived for sixty-nine years on one street in that city.

OKLAHOMA

Bill Passed.—House bill 56, penalizing the sale of adulterated foods, has been passed by the house and the senate.

OREGON

Bill Enacted.—Senate bill 159, regulating the practice of chiropody, has become a law.

Medicine Maker Fined.—Judge Morrow, Portland, assessed a fine on M. F. Lewis, February 14, following a plea of guilty to a charge of practicing medicine without a license. Lewis had been convicted on a similar charge in October and he appealed to the circuit court. He is said to be the head of the M. F. Lewis Medicine Company of Salem and to own a small radio broadcasting station.

Bills Passed.—The following bills have been passed by the house and the senate: Senate Joint Resolution 22, providing for a commission to confer with like commissions from the states of Washington and California for the purpose of considering the enactment of effective laws governing traffic in narcotic drugs, and senate bill 187, amending the law relating to the practice of optometry by increasing the annual registration fee to $5.

PENNSYLVANIA

Bills Passed.—The following bills have passed the house and the senate: Senate bill 5, authorizing counties to maintain hospitals for the treatment of women with nervous diseases; senate bill 61, authorizing cities of third class to appoint boards of health; senate bill 417, requiring midwives to be licensed and registered by the state board of medical education and licensure. Senate bill 704, amending the law relating to optometry by defining the scope of the examinations, has been passed by the senate.

Bills Introduced.—House bill 1440 authorizes the department of welfare to license private nursing homes and hospitals. Senate bill 813 authorizes counties to establish institutions for the feebleminded. House bill 1097 provides that the fees from the annual registration of medical practitioners be paid into the state treasury by the bureau of medical education and licensure for the use of the commonwealth. House bill 1342 provides for a board of health or a health officer in each township and in each borough having a population of 2,000 or more.

Philadelphia

Personal.—Dr. Carl E. Bachman will soon leave for Bangkok, Siam, to do special work at the Royal Medical College under the sponsorship of the Rockefeller Foundation.——The Kane Public School, Twenty-Sixth and Jefferson streets, celebrates annually the birthday of the late Dr. Kent E. Kane, an arctic explorer who went in search of the lost expedition headed by Sir John Franklin. Dr. Kane was born in Philadelphia, February 4, 1820. The recent celebration was attended by several of his descendants.

Society News.—Dr. Selling Brill, among others, addressed the Philadelphia Academy of Surgery, March 4, on "Effect of Heat and Cold in Intraperitoneal Temperature"; Dr. James Lacey, "Vascular Occlusion and Nonunion"; Drs. Charles H. Frazier and William B. Mosser, "Effect of Iodine and Thyroid Feeding on the Thyroid Gland," and Drs. Isidor S. Ravdin and Calvin M. Smyth, Jr., "Bile Ascites and Bile Peritonitis."——The Philadelphia Psychiatric Society conducted a symposium on eugenics, March 8; Drs. Gerald H. J. Pearson spoke on "History of the Eugenics Movement"; Edward L. Bauer, "Eugenics from the Pediatric Standpoint"; James H. Lloyd, "Some Thoughts on Eugenics," and Clifford B. Farr, Lauren H. Smith and Louis A. Schwartz, "Relative Importance of Hereditary Factors in Constitutional and Organic Psychoses."——Dr. Frederick M. Allen, Morristown, N. J., addressed the Philadelphia County Medical Society, March 13, on "Dietetic Management of Hypertension."——Dr. Otto Rank

of the University of Vienna addressed the section on general medicine of the College of Physicians of Philadelphia on "Therapeutic Approach to Neurosis."——Dr. Robert L. Dickinson, New York, secretary, Committee on Maternal Health, and Dr. Hannah M. Stone, New York, of the Birth Control Clinical Research Bureau, addressed a conference of physicians at the Bellevue-Stratford Hotel, March 19, on "The Technic of Contraception."

RHODE ISLAND

Bill Introduced. — House bill 783 provides that licensed chiropractic physicians shall be entitled to the same services of the pathologic and chemical laboratories of the state board of health as are now available to other physicians.

SOUTH DAKOTA

Bill Passed.—Senate bill 203, appropriating $37,500 for improvements and equipment at the state hospital for the insane at Yankton, has passed the house and the senate.

Bills Enacted.—Senate bill 77, amending the law relating to the state board of pharmacy by defining "pharmacopeia" as the latest edition of the United States Pharmacopeia and "national formulary" as the latest edition of that work published by the American Pharmaceutical Association, has become a law. The following bills have become laws: Senate bill 58, amending the law regulating the sale of poisons by placing under two schedules, A or B, drugs deemed to be poisonous, and senate bill 89, authorizing counties to establish, erect and maintain county hospitals.

TEXAS

Bills Enacted. — The following bills have become laws: Senate bill 49, creating a state board of pharmacy and regulating the practice of pharmacy; senate bill 75, creating a board of nurse examiners; senate bill 105, amending the optometry act by confining optometrists to the fitting of lenses or prisms to correct abnormal vision, and senate bill 285, providing that unclaimed bodies from eleemosynary institutions be given to the state anatomic board.

Bills Passed.—Senate bill 314, creating a state hospital for cancer and pellagra, has been passed by the house and the senate. Senate bill 126, amending the medical practice act by requiring physicians to register annually and to pay an annual registration fee of $2, has passed the house and the senate. The following bills have been passed by the house: House bill 399, providing for sterilization of certain inmates in state institutions for insanity, and house bill 508, providing for the establishment of two psychopathic hospitals as a part of some of the hospitals for the insane now being maintained by the state.

VERMONT

Bill Introduced.—Senate bill 62 provides that no person shall carry intoxicating liquor or narcotics into any place used as a jail or lockup, except on the prescription or direction of a physician.

Bill Enacted.—House bill 48, providing for the licensing of chiropodists and the membership of one chiropodist on the state board of medical examiners, to have voice in the deliberation of the board in matters pertaining to chiropody only, has become a law.

WASHINGTON

Bill Enacted.—Senate bill 161, authorizing common carriers to grant free or reduced transportation for their surgeons and physicians and their families, has become a law.

Bills Passed.—Senate bill 237, authorizing counties to unite in building sanatoriums to care for persons suffering from tuberculosis, has been passed by the house and the senate. Senate bill 304, providing for the administration and management of county hospitals, and of joint county and city hospitals, by a board of trustees of five, appointed by the board of county commissioners, has been passed by the senate. House bill 283, providing that all hospitals supported in whole or in part by public funds must accord like privileges to all licensed physicians, regardless of the school of healing they profess, has been passed by the house. House bill 197, regulating the sale and distribution of caustic or corrosive substances, has been passed by the house and the senate. Senate bill 84, authorizing the director of business control to establish an institution in the western part of the state for the custody of mental defectives to be known as the Western Washington Industrial School, has been passed by the senate.

WEST VIRGINIA

Bill Introduced.—House bill 263 amends the law relating to chiropractic by requiring that an applicant for a license to practice chiropractic shall be a graduate of a four-year high school and of a chiropractic college offering a resident course of at least three years of eight months each and requiring active attendance on same.

Bills Passed.—Senate bill 180, establishing a state orthopedic hospital and providing for its control, management and maintenance, has been passed by the house and the senate. Senate bill 31, providing for sexual sterilization of certain inmates of state institutions, has been passed by the house and the senate. The following bills have been passed by the house: House current resolution 7, establishing a general hospital for the care and treatment of veterans, and house bill 130, requiring applicants for marriage licenses to file health certificates certifying the absence of venereal disease.

Society News.—The Mercer County Medical Society varies its program by assigning carefully selected "questions," instead of a formal paper, to members to answer at a stated meeting. ——The Logan County Medical Society was addressed, February 20, by Dr. Ernest R. Logan, Omar, on influenza, and by Dr. David Littlejohn, Charleston, on communicable diseases. ——The Cabell County Medical Society is broadcasting over Station WSAZ, Huntington, a forty-five minute program prepared by its members and consisting of a lecture and questions and answers.——The Canti Cancer Film will be shown during the annual meeting of the state medical society at Martinsburg, May 22.——"Malta Fever in the United States" was the subject of an address by Dr. Charles W. Wainwright, Jr., Baltimore, at the March 15 meeting of the Ohio County Medical Society, Wheeling.

WISCONSIN

Bill Passed. — Senate bill 162, providing that physicians holding federal liquor permits will not be required to obtain state liquor permits, has been passed by the senate.

Bill Introduced.—House bill 376 provides that any honorably discharged World War veteran shall be permitted to enter the Wisconsin general hospital and obtain all care at the clinic at cost, provided such veteran shall have been a resident of Wisconsin for five years.

Personal.—Dr. Walter W. Peck has been elected president of the Kiwanis Club of Darlington.——Dr. William F. Lorenz, Madison, has been appointed colonel of the one hundred and thirty-fifth medical regiment of the Wisconsin National Guard. ——Dr. Henry S. Atkinson has been appointed health commissioner of the city of Green Bay.

Dr. Sheldon Honored. — The house of delegates of the State Medical Society of Wisconsin voted last year to offer a prize during 1929 for an essay on "How Shall the General Practitioner Best Increase His Usefulness," and the council of the society has named the prize in honor of Dr. Charles S. Sheldon of Madison, "a man who in his practice, his interest in the society and his life best typifies the ideal general practitioner." Any member or senior student in the state university medical school may compete. Manuscripts, which must be in the hands of the secretary, 301 Washington Building, Madison, by November 15, must not exceed 4,000 words, and should be sent in signed by a nom de plume. In a separate envelop should be the author's name and his nom de plume. Dr. Sheldon was secretary of the state medical society for twenty-five years.

GENERAL

Society News.—The federal narcotic board, comprising the secretaries of state, the treasury and commerce, has deceased the amount of opium that can be legally imported into the United States this year to 135,790 pounds, a decrease of 8 per cent over last year; the imports of coca leaves have been fixed at 176,000 pounds, a decrease of 25 per cent. ——The National Conference of Social Work will hold its annual meeting in San Francisco, June 26-July 3; thirty kindred organizations will meet in connection with the conference. Additional information may be had from the general secretary, Howard R. Knight, 277 East Long Street, Columbus, Ohio. —— The World League for Sexual Reform will hold a congress in London, England, September 9-13, and among the presidents announced is Dr. Henry Havelock Ellis, and among the supporters, H. G. Wells, Arnold Bennett, Bertrand Russell, Hugh Walpole and D. H. Lawrence. The subjects for special discussion are: marriage law reform, birth control, prevention of venereal disease, prostitution, and sex

and censorship.——The Association of Record Librarians of North America will hold its first annual meeting in Chicago, October 14-18.

Diabetes Reported Higher Than Ever Before.—In the annual summary of health conditions among its 18,000,000 industrial policyholders, the Metropolitan Life Insurance Company found that the diabetes death rate for 1928 was the highest in its experience (17.8 per hundred thousand). It has increased, the report states, 34 per tent since 1911. The recent rise has been contemporaneous with the increasing use of insulin and has occurred despite the fact that insulin has prolonged the lives of thousands of diabetic persons. The death rate after the age of 55 has increased very sharply. The cancer situation among the policyholders continues to grow definitely worse. The 1928 death rate from typhoid was the lowest in the history of the company, and there was a new low point made in the mortality from tuberculosis, diphtheria, scarlet fever, diarrheal complaints and puerperal conditions. The expectation of life among the wage earners in 1927 was 56.42 years at birth or higher than ever before. In sixteen years, there has been a gain of 9.79 years in the life expectancy of the industrial populations of the United States and Canada, while during the same period the expectation of life in the general population has gained only 6.06 years. The longevity of the wage earning population has almost caught up with that of the general population.

Keeping in Touch with Byrd.—The radio permits the giving of medical advice from the homeland to those men of the Byrd Antarctic Expedition who are now isolated far south on the ice. Commander Byrd selected men to go who were physically and mentally fit, and he took along as chief surgeon Dr. Francis D. Coman, a graduate of Johns Hopkins. Dr. Coman will have assistance by radio in caring for Byrd's men from a board of New York physicians, comprising Drs. Wendell C. Phillips and Alexander Lambert, both Past Presidents of the American Medical Association, Harlow Brooks, Fred H. Albee, Ellice H. Alger, H. Schuyler Clark, Charles G. Ward Crampton, John F. Erdmann, Thomas J. Harris and Terry M. Townsend. Before leaving for the South, every member was given a health examination at the New York Post-Graduate Hospital; one of the more important members was rejected because of physical unfitness; some physical defects were corrected; every man was given a blood typing so that, if necessary, a donor for a transfusion can be selected at once. Records of these examinations are on file at this school and, should Dr. Coman request it, consultation service can be given promptly. Commander Byrd has expressed his thanks for this service in a letter which the New York Post-Graduate Medical School and Hospital has made public.

Report of Commonwealth Fund.—One project of the Commonwealth Fund, New York, is that of providing fellowships for British graduate students in American universities. There are now, according to the report for the last fiscal year, fifty-one such fellows studying at seventeen institutions in this country, and an expenditure of $198,150 was made for this purpose. The total appropriation made by the fund last year, $2,083,621.80, was to further a wide range of public health, mental hygiene, child welfare and educational activities. Eight major activities received all except about $400,000, which was distributed among forty outside institutions, hospitals and universities as grants for special purposes. The Commonwealth Fund, which for years has assisted in developing child guidance clinic work in England, will open a special service and training clinic in this field in London this spring. The fund has assisted the Institute for Child Guidance in New York, and supported the National Committee for Mental Hygiene in the organization of thirteen clinics. The demonstrations in child health work which the fund undertook at Fargo, N. D., and in Rutherford County, Tennessee, and in Athens and Clarke County, Georgia, for a period of five years have been completed, and the demonstration in Marion County, Oregon, is entering its final year. The fund expects to complete, by July 1, its program of child welfare and public health work in Austria which it took over in 1921. The Austrian authorities will continue the child health stations; this program is said to promise success beyond the hope entertained at first. Among special grants made by the fund were $117,000 for fellowships in psychiatry at the Boston Psychopathic Hospital, Henry Phipps Psychiatric Clinic, Baltimore, and the University of Colorado School of Medicine, Denver; $22,500 to the American Public Health Association for the study of public health programs in rural areas, and $7,500 to the New York Tuberculosis and Health Association for cardiac research.

Government Services

Foreign Duty

The following medical officers were ordered to sail about February 16 from New York for the Philippine Islands; Major Patrick F. McGuire, Fort Benning, Georgia, and Major Daniel B. Brinsmade, Watertown Arsenal, Mass.——Lieut. Col. Louis H. Hanson will report in person to the president of the army retiring board, Washington, D. C., at such time as the president thereof may designate for examination by the board.——Capt. Dalmar R. Blakely, relieved from duty at Langley Field, Va., sailed about March 8 from New York for the Hawaiian Department for duty as flight surgeon; Capt. Charles F. Shook, on completion of his tour of service in the Hawaiian Department, will proceed to Langley Field for duty.——Major William E. Wilmerding, Scott Field, Ill., will sail from New York about May 3 for the Philippine Islands for duty.——On completion of their foreign service tour in the Philippine Department, Major John F. Duckworth will proceed to Scott Field, Ill., for duty; Major Walter F. Von Zelinski to Fort Eustis, Virginia, and Capt. William J. Miehe to Fort H. G. Wright.——Major Samuel M. Browne, relieved from duty at William Beaumont General Hospital, El Paso, sailed from San Francisco about March 9 for duty in Tientsin, China.——Capt. Victor N. Meddis, on completion of his present tour in China will proceed to Fort Sam Houston, Texas, for duty.——Major Carl H. Witherell was relieved from duty at San Juan, P. R., and assigned to the quartermaster depot, Baltimore.——The following officers will sail from New York in May for the Philippine Islands for duty: Major Nelson A. Myll, Fort McPherson, Georgia; Capt. Paul H. Streit, U. S. Army General Dispensary, Washington, D. C.; Major Charles G. Hutter, now at the army general hospital, El Paso; Capt. Berban Huffine, now at the Fitzsimons General Hospital, Denver, and Lieut. Dwight M. Young, Fort Leavenworth.

Changes in Veterans' Bureau Personnel

The *U. S. Veterans' Bureau Medical Bulletin* announces the following changes in personnel:

HOSPITALS

Dr. William M. Bevis, reappointed at Northport, N. Y.
Dr. Frank R. Bradley, resigned at Jefferson Barracks, Mo.
Dr. Thomas S. Carrington, transferred to Camp Custer, Mich.
Dr. Emanuel J. Cohn, resigned at Sheridan, Wyo.
Dr. Ambrose H. Cook, appointed at Washington, D. C.
Dr. Robert E. Davis, resigned at Fort Harrison, Montana.
Dr. Joseph C. DeVries, transferred to New York.
Dr. James O. Griffin, appointed at Memphis, Tenn.
Dr. Chester M. Hazen, transferred to Kansas City, Mo.
Dr. Walter A. Jillson, transferred to Palo Alto, Calif.
Dr. Charles A. Kearney, transferred to Boise, Idaho.
Dr. James E. Maloney, transferred to Newark, N. J.
Dr. Earl A. Martin, reinstated at Washington, D. C.
Dr. Henry E. Pick, resigned at Sunmount, N. Y.
Dr. Thomas J. Seale, resigned at Sheridan, Wyo.
Dr. John H. Vermilye, transferred to Legion, Texas.
Dr. Maurice M. Barship, appointed at Knoxville, Iowa.
Dr. Joseph C. Fulmer, transferred to Northport, L. I.
Dr. Clifford W. Hoffman, appointed at Lake City, Fla.
Dr. Edward S. Jones, transferred to Northampton, Mass.
Dr. William R. Leverton, reinstated at Tucson, Ariz.
Dr. Frank E. Mason, transferred to Aspinwall, Pa.
Dr. Cyrus C. Morrison, appointed at Dwight, Ill.
Dr. Austin J. O'Leary, transferred to Seattle.
Dr. George B. Setzler, transferred to Sheridan, Wyo.
Dr. Ivy G. Shirkey, transferred to Dwight, Ill.
Dr. William R. Washburn, transferred to Fort Bayard, New Mexico.
Dr. Steven F. Weygandt, resigned at Dwight, Ill.
Dr. Daniel B. Williams, appointed at Atlanta, Ga.
Dr. Tom V. Willis, resigned at Lake City, Fla.

REGIONAL OFFICES

Dr. Andrew J. Ames, transferred to Chicago.
Dr. Clarence W. Cowper, transferred to Washington, D. C.
Dr. George H. Dalton, resigned at New Britain, Conn.
Dr. Paul G. Dick, resigned at Chicago.
Dr. Edward J. Gordon, resigned at Newark, N. J.
Dr. John J. Harrington, reinstated at Sioux Falls, S. D.
Dr. John W. Hodges, transferred to Richmond, Va.
Dr. Aaron A. McKelvey, reinstated at Pittsburgh.
Dr. William B. Parker, transferred to Washington, D. C.
Dr. Myer Segal, appointed at Hartford, Conn.
Dr. Leo R. Tighe, reappointed at Albany, N. Y.
Dr. Leo W. Chilton, resigned at Boise, Idaho.
Dr. Edmund Eastwood, reappointed at Buffalo.
Dr. Benjamin Gleason, transferred to Washington, D. C.
Dr. Leo Kewer, reinstated at Portland, Maine.
Dr. Alfred J. Ostheimer, resigned at Buffalo.
Dr. Walter A. Ostendorf, resigned at San Antonio, Texas.
Dr. W. Melville Pamphilon, appointed at Buffalo.
Dr. Fred B. Patterson, resigned at Portland, Ore.
Dr. Charles B. Sylvester, resigned at Portland, Maine.
Dr. J. D. Thomas, resigned at Cincinnati.
Dr. Joseph T. Woodward, resigned at Pittsburgh.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 23, 1929.

Advance in the Radium Treatment of Malignant Disease

Great attention is now being devoted in this country to the radium treatment of malignant disease and, whatever the ultimate position, it can be stated that, thanks to improved technic, a definite advance has been made. This was shown in striking fashion in the hunterian lecture delivered by Prof. G. E. Gask at the Royal College of Surgeons to a large audience, including the president, Sir Berkeley Moynihan, and followed by a demonstration of forty-nine cases. The lecture was a survey of the results obtained by the surgical unit of St. Bartholomew's Hospital, of which Professor Gask is director. In 1921 the unit began the radium treatment of malignant disease by embedding 150 Gm. of radium in sarcomas. The results were not encouraging. Of four patients treated in 1921 one was alive; of five treated in 1922, one; of four treated in 1923, two; and of four treated in 1923 all were dead. In 1923 treatment of carcinoma of the breast was begun. Three patients treated with large doses for a short time showed local improvement, but death occurred from metastases. In 1924 two patients showed the same result.

It was clear that the local effects of radium were good, but that the radium should be more widely distributed. Therefore, in 1924, treatment was begun with needles containing 1 or 2 mg. of radium, which were widely distributed, so as to constitute a barrage around the growth, and were left in for 120 hours or longer. One patient with primary carcinoma so treated is alive and well. In 1925 one patient with recurrent carcinoma so treated died, and of six with primary carcinoma two were alive and four had died from metastases. In 1926 of eight patients with recurrent carcinoma so treated one was alive; of six with primary carcinoma, four. In 1927 the treatment was more standardized. Needles of 3, 2 and 1 mg. were used. The total dose of radium for complete treatment of carcinoma of the breast was from 70 to 90 mg. left in for from 120 to 170 hours. Of thirteen patients treated ten were alive. Of thirty-nine treated in 1928, all are alive. In 1927 and 1928, epithelioma of the mouth, lips and tongue was treated by seeds containing radon. Good results were obtained from the start, but the problem remains of the treatment of metastases in the neck. A barrage of radium needles is being tried. A few cerebral tumors have also been attacked with radon seeds with encouraging results which, however, are still inconclusive. The demonstration of forty-nine cases of malignant disease, each with a drawing of the condition at the beginning of the treatment, and now apparently cured, was most striking. Tumors shriveled, fungating ulcers healed and glands cleared up. There were twenty-seven cases of cancer of the breast, one of which went back to 1924, six cases of carcinoma of the tongue, five of the lip, two of the floor of the mouth, and two of the fauces; there were three cases of sarcoma and three of cerebral tumor. Professor Gask said that time alone would show what would be the ultimate results, but they promised to be better than those of operation, which at St. Bartholomew's and at the Cancer Hospital had been discouraging.

The medical research council has published a report of the work at various hospitals to which it has lent radium. In connection with dosage an important change is noted. For many years it was the practice to look on tubes of radium containing as much as 20 or 30 mg. of the element as the most generally useful, and the times of exposure were about twenty-four hours. Now, while this may still hold for some sites, notably in cancer of the cervix uteri, it has been shown that growths affecting the buccal cavity are better treated by much less intense foci, such as tubes containing 1 or 2 mg., inserted for a week or more. It is asserted that any woman suffering from early carcinoma of the cervix uteri can have the growth removed locally by means of a definitely planned course of radium treatment as surely as by surgical means; a man with a malignant growth of the tongue can likewise have the disease locally cured. In the latter case, even if the growth has extended to the glands, radiosurgical methods offer a good prospect of eradicating the disease.

At the Middlesex Hospital cancer of the breast was treated by surgical radium therapy and surface radium therapy. With the former, the methods most frequently used in mammary cancer were supplementary to radical operation. At the time of the operation, separate tubes of radium containing from 10 to 20 mg. of the element were inserted in the intercostal spaces, the supraclavicular fossa, and the apex of the axilla; they were left in position for twenty-four hours. If visible recurrences were present, they were treated by encircling the growth with radium tubes. In the majority of nine cases of recurrence after operation, the local growth disappeared. In one case in which the immediate result was favorable, recurrence took place in five months and cancer en cuirasse developed over the region of the recurrences.

Surface radium therapy was employed in sixty-three cases of breast cancer, including six of primary breast cancer, twenty-one of supraclavicular recurrence and thirty-four of nodular recurrence. This irradiation was practically all carried out by gamma ray applicators having a concentration of from 7.5 to 10 mg. of radium element per square centimeter. Such an applicator applied close to the skin often produces a slight erythema if the exposure lasts from three to four hours, but if a distance of 6 cm. is maintained, the time of exposure for the same effect would be about twenty-four hours. When the skin is intact, the aim has been to give the maximum radiation possible to the underlying primary tumor or recurrence, with the minimum harm to the skin. Skin injury and consequent infection have been followed by renewed growth in apparently satisfactory cases. This has been shown again lately in one of the first cases of primary carcinoma of the breast treated; after an interval of more than three years fissuring took place in an injured area of skin and renewed growth followed. A considerable proportion of patients with inoperable cancer of the cervix remain alive one or two years after radium treatment but a much smaller proportion for three or four years. In a few centers the local treatment with radium is supplemented by x-rays. Workers at St. Bartholomew's report that in most inoperable patients there is no difficulty in getting rid of the growth in the uterus and vagina, but this growth tends to continue in the deeper tissues—i. e., round the rectum—and causes strictures. It is, however, by no means proved that all of these strictures are due to malignant growth, and it is regarded as possible that in some they are caused by fibrous tissue.

Aerial Transport of Wounded

The evacuation of sick and wounded sailors or soldiers by troop-carrying airplanes and the rôle of the medical services in combined operations will be among the subjects discussed at the International Congress of Military Medicine and Pharmacy, to be held in London in May. The aerial transport of sick and wounded in war, as a preliminary to the congress, is discussed in the current issue of the *Journal of the Royal Army Medical Corps* by General-Medecin Fritz Bauer, inspector-in-chief of the Swedish army medical service. In the Great War it was not till 1917 that the first case was evacuated from the front by airplane. During the Serbian army retreat on the Albanian mountains at the beginning of the war two French aviators carried twelve wounded men from Priznend to Scutari, a distance of 50 miles. In Morocco, in 1923, more

than 700 wounded were evacuated by airplane to hospitals in Meknes, Fez and Casablanca, the distances varying from 50 to 350 miles. Again, in 1925, some 928 sick and wounded were carried by airplane in Morocco, and by the end of that year about 3,000 cases had been evacuated without accident by airplane in Morocco and Syria. Following the French experience the British began the transport by aerial ambulance of the sick and wounded in Iraq. A Vickers-Vermont machine carried four patients from Kirkuk to Bagdad, a distance of 185 miles, and a little later arrangements were made to transport cases from Iraq to Egypt across the desert, a distance of 625 miles. A journey which formerly took from three to four weeks could now be done in one day.

Child Guidance Clinic

The first child guidance clinic to be set up in this country by the child guidance council, for the special treatment of "problem children," is to be established in London. To this clinic nervous, unstable, maladjusted and difficult children, of school and preschool age, will be sent, with the parents' consent, by teachers, medical officers, care committees and other organizations. The staff of psychiatrists, psychologists and social workers will there study the child and its history and environment in order to be able to advise on any change of surroundings or treatment necessary to bring the child normality if possible. The council, however, wishes it to be understood that psychoanalytic methods will not be used. At the head of the staff is Dr. William Moodie, formerly deputy medical superintendent at the Maudsley Hospital, with Dr. R. Evelyn Lucas, Miss Lucy G. Fildes, Miss MacTaggart, and Miss Evelyn Lawrence (chief social worker) as his assistants. They are all at present in America, studying methods in child guidance clinics there, where the work has been developing for twenty years. The new clinic in London, whose work will be made possible by the generosity of the Commonwealth Fund of New York (established in 1918 "for the welfare of mankind" by Mrs. Stephen V. Harkness, who died in New York three years ago), will be opened for an experimental period of three years. The board of education looks on the experiment with approval and the London county council is represented on the managing body and has agreed to regard time spent by children at the clinic as school attendance. The guidance council hopes that it will be recognized as doing such invaluable work that similar clinics will be established in other parts of London, and later, perhaps, all over the country.

Twenty Grains of Morphine Daily for Twenty Years

It was disclosed at an inquest on a physician that he had been in the habit for twenty years of taking 20 grains (1.3 Gm.) of morphine daily. A physician who had attended the deceased in his last illness said that the normal dose of morphine was one-fourth grain (16 mg.), and that he was told four days before the patient died that he had been accustomed to take morphine. The habit had originated from a very severe and excruciating pain the deceased had had twenty years before. Nothing could be found to account for the pain, but it could be alleviated only by morphine, and he had consequently taken up the habit. The witness asked the patient whether he could manage with less morphine and gave him only 2 grains (0.13 Gm.) a day, but after a short time the deceased said, "You will never do anything with me unless you put me back on my normal dose." The witness consulted a specialist, and they agreed to take that course. The nurse who was attending the deceased said that he asked her to fill some cachets with 5 grains (0.32 Gm.) of morphine which was kept in a bottle in a box in his room. She gave him four cachets one day and two the next. He knew what he was doing, and he asked her not to say anything to any one about it. A pathologist who made the necropsy said that death was due to lobar pneumonia and toxemia. With due regard to the deceased's habit, it was stated that the morphine could not have had anything to do with the cause of death. The jury returned a verdict of death from natural causes, and added its opinion that the nurse should have advised the physician attending the deceased of the cachets that were being given. The coroner said to the nurse that he wanted her to promise him that she would never give any dangerous drug again to a patient, whether he was a physician or not, without the orders of the medical attendant. She promised.

PARIS

(From Our Regular Correspondent)

Feb. 13, 1929.

Direct Transfusion of Blood to the Heart

Professor Achard, M. Cournaud and Mlle. Pichot reported recently before the Academy of Medicine the case of a woman, aged 28, with typhoid, in whom the serodiagnosis did not become positive until the fifty-second day, during a relapse. Hemorrhages having intervened during the first attack, injections of artificial serum were given. Then, the condition becoming alarming, preparations were made for a blood transfusion. As the collapse of the veins prevented an intravenous injection and the patient was dying, 400 cc. of citrated blood was injected into the heart, at the third intercostal space, near the left margin of the sternum. The pulse became stronger and improvement was rapid. The injections of artificial serum were continued and the patient recovered. This mode of transfusion is exceptional and is indicated only in case of extreme urgency.

The Inferiority of Antipneumococcus Serum in Pneumonia

A report was recently made before the Academy of Medicine by two colonial physicians, MM. Legendre and Phiquepal d'Arusmond, on a peculiar observation that they made while treating a large series of cases of pneumonia among the natives of Haute-Volta. By using antipneumococcus serum in daily doses of from 80 to 100 cc. for three or four days, they secured only 50 per cent of recoveries, whereas they obtained 88 per cent of recoveries by the use of an average dose of 10 cc. of antidiphtheria serum or even of Calmette's antivenom serum. According to the authors, the specificity, in the therapeutic sense of the word, of the antivenom serum and the antidiphtheria serum is not due to mere protein therapy, for all three serums were derived from the horse. The antipneumococcus serum, however, when injected in a dose ten times as strong, contained ten times more proteins and should have produced results at least equal to those produced by the two other serums. The good effects of antidiphtheria serum in pneumonia were already known; but the equally remarkable effects of antivenom serum had not been previously established.

Typhoid in Havre in 1928

MM. Loir and Legangneux, on analyzing the cases of typhoid in Havre last year, state that the most remarkable thing in the statistics is the large number of deaths with relation to the cases observed. As they were convinced that, at least in August and September, the ingestion of raw mussels was most frequently the source of the infection, they conclude that the toxicity of the mussels in question was high, and that, under these conditions, the mortality is not the same as in typhoid infection resulting from water or from other generally known causes. It is probable that mussels constitute an especially favorable culture medium for the typhoid bacillus.

Prizes for Large Families

The department of the Seine accords prizes for large families, in order to combat depopulation (so-called race suicide). The prizes are not large, but the number of persons taking advantage of them is considerable. The allocation of birth prizes, amounting to a total of 8,523,403 francs, cost the department of the

Seine (after deducting the contributions of the state and the communes) the sum of 5,236,236 francs in 1927. It is of interest to note the distribution of the 8,717 prizes granted: 4,792 for the birth of the third child, 2,212 for the fourth, 1,054 for the fifth, 484 for the sixth, 293 for the seventh, 126 for the eighth, and sixty-seven for the ninth. There were eighteen and eleven prizes for the birth of the tenth and the eleventh child, respectively; four prizes each for the twelfth and thirteenth child, and one prize for the fourteenth child. It is evident that the low birth rate in France is due to economic causes and not to peculiarities of race, for, in Canada, the families that have remained purely French in stock have from eight to twelve children in many cases.

Deaths

Dr. Lermoyez has died at the age of 70. He was one of the masters of French otorhinolaryngology. Having served as hospital intern, he was appointed, as a result of a competitive examination, physician to the hospitals. In 1898 he created at the Hôpital St. Antoine the first official laryngologic service, there having been, up to that time, only external consultations entrusted to outside physicians. It was due to his influence that his specialty (laryngology) became recognized as a normal branch of the public charities service and was provided with hospital accommodations and with physicians appointed through competitive examination. He was the son-in-law of the famous surgeon Labbé. He had published numerous technical works, among them Études sur la phonation thérapeutique des maladies des fosses nasales, des sinus de la face et du pharynx nasal, thérapeutique des maladies de l'oreille. He was a member of the Academy of Medicine, and was one of the founders of the well known French medical journal the *Presse médicale*. Within three weeks, this journal has lost four out of eight of the members of its editorial council: Widal, Letulle, Sicard and Lermoyez, without counting the manager, Pierre Masson, who died two months ago.

The Purification of Sewage Waters by Spreading Them Over Large Land Areas

The senate is considering prohibiting the spreading of sewage waters over large land areas (*épandage*, so called) for the purpose of purifying them. The method of *épandage* was introduced thirty years ago. The sewage waters of the city of Paris, which emptied into the Seine, contaminating the river and creating serious dangers for the persons living along its banks, were diverted to the sandy areas of the peninsula of Gennevilliers located in one of the mouths of the Seine. This arid soil was thus fertilized and became a great center of vegetable gardens, which have contributed copiously to the tables of Parisians. At the same time, the sewage waters, purified by this filtration, were returned to the Seine in a harmless condition. The first experience having been judged conclusive and favorable, the system was extended to another area in the region of Achères. Still more recently, the prefecture of the Seine wished to extend it to the plain of Herblay. But now the population of that region has risen in arms against the proposal. The truth of the matter is that, in the course of time, the disadvantages of the system have become evident. The sewage, in large quantities, was brought by the sewers, which were opened only from time to time, for, if allowed to flow continuously, a too heavy soaking of the soil or veritable inundations would have been caused. The stagnant waters spread an objectionable odor round about, especially in summer, and the regions that it was proposed to flood in the described manner are dotted here and there with country villas, the residents of which protested energetically against the suggested extension of the system. Furthermore, it has been discovered that the vegetables produced on this infected soil are contaminated with germs, which become the source of epidemics of gastro-enteritis and typhoid, for most of the vegetables and fruits raised on these flooded areas (radishes, lettuce, strawberries, and the like) are eaten without the sterilization resulting from cooking. A comprehensive report by Dr. G. Brouardel, addressed to the senate, brings out all these facts and concludes with the recommendation that the system of *épandage* be suppressed, as he considers it a dangerous method already condemned by experience. He recalls that, at the time of the creation of the first areas flooded with sewage waters, Pasteur opposed the system with great energy, foreseeing the dangers that would arise with reference to the public health. He demanded that the flooded areas should at least be allowed to lie fallow or be used for pasture and not given over to the cultivation of fruits and vegetables. But the advice of Pasteur, in spite of his great authority, was not followed because the city of Paris had found the system a very simple and economical means of disposing of sewage waters that had become too abundant. Since that time, science has made great progress along this line. The percolating beds and the septic tanks produce much surer results, and it is time to abandon this primitive method. A bill brought before the senate by M. Philipp would prohibit any commune from flooding any area with sewage waters, and grants a respite of fifteen years to the communes that have introduced the system within which to suppress it and provide another method of sewage disposal.

BUCHAREST

(From Our Regular Correspondent)

Feb. 25, 1929.

A Case of Herpes Zoster of Periodic Type

At the recent meeting of the Oradea Medical Society, Dr. V. Stephan reported on a patient subject to periodic attacks of herpes zoster, who first came under treatment while free of the disease. He complained of paresthetic symptoms in the left half of the mouth. Examination of the cavity revealed nothing abnormal. He prescribed quinine, which had no effect whatever; then 10 drops of solution of potassium arsenite daily, also without effect. Later on pills of ergot and quinine bromide were ordered, and the herpetic area was treated with ultraviolet rays. A hundred pills were taken within four months. This time there was no recurrence of herpes, and the paresthetic symptoms disappeared. Further observation of the case might possibly have shown how much of the improvement was due to the medicinal treatment and how much to the ultraviolet rays; also how much was due to a more favorable season of the year, the disease generally recurring at cold seasons and getting better during the warmer ones, but the patient was lost sight of through change of residence.

Renal Lithiasis in Infancy

In a recent article in the *Buletinul Medico-Chirurgical*, Dr. Theodorescu says that during the last five years he has made 140 necropsies, and has observed at least fifty cases of renal lithiasis in one form or another in nurslings. Among these there was not one case of biliary calculus. Renal lithiasis may occur as uratic dust, which may be observed as yellowish striae in the pyramids. Gravelly concretions and calculi are also found, and in some cases may be observed during life in the urine, especially in extreme cases of inanition and malnutrition. A condition known as inanition fever has been described by American authors and is found in newly born children who do not receive a sufficient supply of milk or fluid nourishment. This fever is to be attributed to the deposition of uratic material in the kidney, although no evidence of it may be found in the urine. Bókay of Budapest has pointed out that normally, during the first few days of life, the urine is extremely rich in uric acid, and that by the end of the second week its more usual characters are assumed. Theodorescu has observed nineteen cases, twelve in boys and seven in girls. The majority of the cases occurred under the age of 6 months, and all were due to

bad feeding, inanition and general debility. Of the total number, sixteen were reared by artificial feeding. In addition to the uratic dust observed in the pyramids, gravel and hard calculi, angular or rounded, were found in the pelves of the kidneys and in the calices. They consisted of sodium urate, and it is possible that troubles arising at the later period of life may have their ultimate origin in such early formed calculi. In some instances pyelitis or hydronephrosis was observed. The symptoms were obscure as the usual signs of renal colic were absent. Crying, general uneasiness, screaming during micturition, and retention of urine may all be symptoms. The prognosis should be reserved. Fatal results may follow; in case of survival, renal colic, cystitis or vesical calculi may occur.

Prophylactic treatment should be observed by insisting on ample and proper nourishment at the earliest period of life, although overloading of the stomach should be avoided. Weaning should not take place too soon, and during febrile attacks plenty of water should be given to facilitate the excretory action of the kidneys. If the stomach is extremely intolerant to food, lavage of that organ or injections of artificial nutrient preparations may be employed. If the diagnosis of lithiasis is confirmed, the child may undergo further treatment as indicated.

BUDAPEST

(From Our Regular Correspondent)

Jan. 24, 1929.

Suicides in Budapest and in the Large European Centers

A comparison of the statistical figures relating to the rate of suicides in Budapest before and after the war shows that the rate was lower in prewar years than it has been in the postwar years. The number of suicides was 334 to 1,000,000 inhabitants in 1874; 462 in 1910-1913; 357 in 1914-1918, and 505 in 1923-1927. It is well known that great national shifts and movements suppress individual self interests and that this is conducive to a decrease in the number of suicides. Hungary lost the war, and with it the existence and hopes of many men vanished. Prior to the war, 68 per cent of the suicides were men and 32 per cent women, while from 1923 to 1927 the figure for men was 57 and for women 43. The numerical increase of suicides was in young women and in old people of both sexes. This can be explained by the fact that in the latter years the number of women earning their bread increased considerably owing to adverse financial conditions and thus they were more exposed to the hardships of life, while the old people, who were accustomed to good living, could not acclimatize themselves to the bitter conditions. Married life seemed to prove a prophylactic against suicide, because the desire to live is more deeply rooted in those having families of their own, as they are more hardened to the struggles of life. Looking at the figures from the point of view of religions, we find that the number of suicides is lowest among the Roman Catholics, and next among the Jews, while it is highest among the Protestants. From the standpoint of occupation, it is highest among those having an uncertain existence, and, among the men, merchants and those dealing with credit business and craftsmen's assistants head the list, while, among the women, domestic servants are to the fore. Pensioned widows are also in the foreground. The majority of young people were driven into suicide by hopeless love, while the majority of old people were driven to suicide by incurable diseases. Comparing the suicide index of Budapest with that of other capitals, we find that such high indexes are found only in Berlin and Dresden.

Appendicitis and Trauma

The question as to whether or not appendicitis can be caused by trauma has been investigated by several authors during the past few years but has not been definitely settled. The causal connection between an accident and appendicitis is of great importance from the point of view of workmen's insurance. According to the Hungarian law, all expenses in such cases have to be paid by the employer. Professor Lévay, who performed more than 300 appendectomies last year, has been collecting data on this question since January, 1921, and up to June, 1928, had at his disposal 1,054 case histories of appendicitis. Nine of these cases were reported as having been caused by accidents, as follows: one patient said he was kicked on his abdomen; three patients claimed to have suffered blows on the right side of the lower abdomen; two patients said they fell short distances; and three patients reported that they overstrained themselves by lifting heavy weights. Inquiry revealed, however, that in no single instance did a real accident occur. The fact that in the case histories of patients with appendicitis, accidents are rarely mentioned, is important in the arbitration of the question under consideration. Surgeons are well aware of the fact that workmen usually are inclined to attribute local infections (particularly tuberculous infections) to some slight trauma which frequently occurs, and which apparently has nothing to do with the infection. Thus appendicitis as a result of trauma is probably very rare also. From his experiences, Lévay is of the opinion that trauma cannot cause inflammation in a healthy appendix in the normal position, but he admits that external force applied over the site of a pathologic appendix may cause aggravation of the disease. From the standpoint of law and the regulations of the workmen's compensation act it makes no difference whether or not appendicitis is caused by an accident or is aggravated by an accident. In order to confirm the causal connection between an accident and the occurrence of appendicitis, proof is required that the trauma was severe enough to cause the workman to quit work for a while, or to cause him to report the accident to his foreman or fellow workers at once. Proof is also required that the localization and kind of the trauma were likely to act on the appendix, that the manifestations of appendicitis immediately followed the accident, and that operation or autopsy established that the abnormal position and pathologic condition of the appendix was a probable result of the trauma.

Centenary of the Birth of the Frederick Korányi

The Royal Medical Society celebrated the centenary of the birth of the widely known professor of internal medicine of Budapest University, the late Baron Korányi. A huge audience assembled in the spacious Semmelweiss hall of the medical society, to express reverence and esteem for the late teacher and master. Almost all Hungarian physicians, excepting the younger generation, were his pupils. In addition to physicians, there were present also prominent statesmen, ministers, state secretaries and other celebrities of public life who appreciated the work done by Korányi in the interest of public hygiene and public welfare. The inaugural address was delivered by Prof. Kornél Scholtz, ophthalmologist and state secretary, who emphasized the merits of Korányi. He mentioned that in the period following the compromise between the late Emperor Francis Joseph and the Hungarian nation (1867), when Hungary was reconstructed, Balassa, Markusovsky, Bókay and Korányi were leaders in the revival of scientific medical work that gave impetus to the work of all other prominent Hungarian scientists. It was Korányi, in collaboration with some of his pupils, who started the extensive clinical research work from which Hungarian medical science gained international importance. His greatest achievement was the organization of the fight against tuberculosis, which at the time was the scourge of Hungary. He was instrumental in the establishment of tuberculosis dispensaries, sanatoriums and hospitals. He was greatly admired as a teacher of clinical medicine and was highly respected by his pupils, whom he taught and trained with a fatherly love. The fact that the Budapest postgraduate courses were attended by physicians from all over the world

was a tribute to his great ability as a teacher. His researches regarding the fall of the freezing point of the blood and urine, his introduction of benzene in the treatment of leukemia, and his discovery of new physical signs in pulmonary tuberculosis made his name widely known. Another address was given by his son, Professor Alexander Korányi, who was honored with a medal to the memory of his father. He expressed his appreciation with the remarks that he was proud the school had been founded by his father, and that he had been able to develop it further.

TURKEY

(From Our Regular Correspondent)

Feb. 22, 1928.

The Narcotic Law

Before the World War, drug addiction was rarely encountered in Turkey, but, with the general destitution following the war and the influx of refugees, drug addiction steadily increased. In the great cities it was established that certain coffee houses frequented by the lower classes secretly furnished hashish (cannabis) for smoking. This secret sale of narcotic preparations has made the enforcement of a law relating to narcotics a necessity. According to this law the importation, exportation, manipulation, preparation and sale within the republic of crude opium products, medicinal opium, morphine, diacetylmorphine (heroin), crude cocaine, cocaine, all salts of morphine, diacetylmorphine, cocaine preparations containing more than 0.20 per cent of diacetylmorphine, and all preparations containing more than 0.10 per cent of hashish are subject to control by the ministry of hygiene and social assistance. Only pharmacists duly licensed to exercise their profession and who own a pharmacy or a wholesale drug concern are authorized to import or sell these narcotic substances within the republic. The raising, production and exportation of crude opium is not subject to this control. Special permission is necessary for the right to operate a laboratory in which the substances mentioned are prepared. These laboratories are subject to the same regulations as similar establishments, and their proprietors are under obligation to employ a chemist or pharmacist to direct the preparation of those substances and to assume the scientific responsibility therefor. Permission is granted by the ministry of hygiene and social assistance and the ministry of national economy jointly. Within the republic, manufacturers of narcotic preparations are not permitted to sell them to persons other than pharmacists or wholesalers. On the other hand, they are authorized to export any of these products. All such establishments, laboratories, depots, departments and offices are subject to inspection by special officials who are authorized to inspect all or any part of such establishments and to demand any further information necessary.

Wholesalers and proprietors of pharmacies wishing to import any of the narcotic preparations must inform the ministry of hygiene and social assistance of their intention on the occasion of each order, indicating the nature and quantity of preparations ordered, the country of their origin, and their means of importation. On identification of the applicant, and after the quantities to be imported have been passed on, the applicant is granted permission to import them. Narcotic preparations cannot be passed through the custom-house unless permission for them is presented. Permissions for importation are voted for six months. They are made out in the name of those persons to whom they are to be delivered, who are prohibited from passing them on or selling to other persons. Permission is refused those applicants who have been subjected to punishment more than twice for not conforming to the regulations for the handling of narcotic preparations. In case a quantity to be imported is considered to be above the indispensable medical need of the establishment, the permission for import is refused the applicant. Proprietors of laboratories handling narcotics that are manufactured within the country for export are under obligation, at the end of each month, to provide the ministry of hygiene with a list, indicating the nature, the quantity of preparations and the name of the country into which the latter are to be exported. The importation of narcotic preparations with the intention of exporting them to other countries is prohibited. Narcotic preparations received in transit are sealed by the customs officers, and consignments of narcotic preparations sent by registered letter or as a "sample without value" are confiscated regardless of destination. Parcels and boxes of value may be accepted if addressed to persons authorized to sell narcotic preparations and who have obtained permission according to regulations. If consignments of narcotic preparations are sent by post within the republic, they are treated in like fashion. Narcotic preparations are sold in pharmacies on prescription and in accordance with the law and regulations concerning pharmacists and pharmacies. Wholesalers are to sell wholesale only to pharmacies, official agencies and laboratories. Each time narcotic preparations are delivered the wholesaler is obliged to demand a receipt from the proprietor of a pharmacy, the responsible director, the representative of the official agency or the director of the laboratory. The wholesaler is held responsible for the conservation of this receipt as indicated in the regulations concerning the conservation and sale of toxic and active substances. According to these regulations, wholesalers are under obligation to keep a book of accounts into which all narcotic preparations received or sold and all receipts are to be entered. The manufacturers of narcotic preparations are also under obligation to keep a book accredited by the ministry of hygiene and to enter therein the names and the quantities of narcotic substances manufactured or prepared in their establishment as well as the names and quantities of substances sold and the names of the buyers. It is required that such a record also be kept by the local health departments. Products derived from the narcotic substances enumerated and which are found to have the same narcotic properties, also come under this law.

For substances enumerated in article 1 of this law and not mentioned in article 403 of the penal code, the provisions of articles 403, 404, 405, 406, 407 and 408 of this code will be applied.

Article 403 of the penal code provides that any person illicitly introducing narcotics, and those having smuggled narcotics transported or transporting them, hiding smuggled narcotics intended for sale, serving as intermediate for their sale, selling or buying narcotics or furnishing apartments or rooms where people are encouraged to try narcotics and get into the habit of using them shall be sentenced to at least six months in prison besides paying a fine of from 100 to 1,000 Turkish pounds.

Article 404 provides that persons dispensing drugs and narcotics, those accepting them, those who gather or meet in some locality to indulge in narcotics and those persons who accompany them shall be sentenced to prison from two to six months and pay a fine of from 5 to 50 Turkish pounds.

Article 405 provides that hospital treatment is to be enforced for drug addicts for at least six months or such time until amelioration is evident. Those who procure narcotics by means of falsified recipes or persons who sell narcotics to minors shall be punished with at least one year in prison besides paying a fine of from 100 to 1,000 Turkish pounds.

Article 406 provides that persons belonging to the medical and allied professions who obtain narcotics to hand out for illegitimate use shall be punished with at least two years in prison besides a fine of from 200 to 1,000 Turkish pounds.

Article 407 provides that if a person through the use of the narcotics contracts a disease or injury, the punishment of the person responsible for it shall be raised by one third to one half. If a death of a person is caused by excessive use of narcotics, the responsible person shall be sentenced to at least five years in prison. If a person is found to be responsible for the disease

of several persons, the penalty shall be doubled and if a person is responsible for more than one death the penalty shall be at least ten years in prison.

Article 408 provides that any one who informs the government of the existence of localities where drug addicts meet shall be paid as reward half of the value of all confiscated matter.

Those who sell narcotic preparations to persons other than those indicated in articles 4 and 11 of the narcotic law are punishable according to the provisions of article 403 of the penal code. On the demand of a local health department the police shall immediately close all establishments and laboratories manufacturing narcotic preparations without license as enumerated in article 1 of the narcotic law, and at the same time legal procedures will be taken and the proprietors of such establishments punished according to the provisions of article 403 of the penal code. Proprietors of establishments who, contrary to the provisions of article 5, hinder an inspection or who refuse to give information or to show the books as well as those who do not observe the provisions of article 12 will be fined from 100 to 500 Turkish pounds. In case of a second offense the general provisions of the penal code are to be applied. If a proprietor ventures a third offense, his establishment will be closed.

This law is valid from the day of promulgation (Dec. 24, 1928). The ministers of hygiene and social assistance, of justice, of the interior, of finance and of national economy are charged with the execution of this law.

BERLIN

(From Our Regular Correspondent)

Feb. 8, 1929.

Radium Treatment of Malignant Tumors

Professor Regaud, the eminent radiologist, of Paris, recently delivered an address before the Berliner medizinische Gesellschaft, at the invitation of that society and the Deutsche Gesellschaft zur Krebsbekämpfung, in which he recounted his experiences with radium treatment of malignant tumors.

There are tumors that are not suited to radiologic treatment, such as gastric and rectal cancers, which, therefore, like operable cancers of the breast, are turned over to the surgeon. In contrast to these, carcinomas of the skin and of the nasal and buccal cavities, for example, react very favorably to radium therapy, which is sometimes superior to surgery in operable tumors. The effect of radium treatment consists in a direct selective destruction of the cancer cells. These must therefore be more sensitive to radium than are the surrounding normal tissues. Also, sufficient penetration must be attained at irradiation, and the surrounding tissues must be protected by filters. The time factor in irradiation is likewise important. The irradiation may be distributed over four or five days. The biologic effect is not thereby lessened. The distribution over several weeks, however, diminishes the chances of success and increases the danger. In the radiologic department of the Curie Institute, Paris, of which Regaud is the director, radium and radon are employed for irradiation. The modes of application are: (1) radium puncture, by insertion of radioactive tubes in and around the tumor mass; (2) radium surgery, with radium placed in cavities prepared surgically; (3) curietherapy, or the insertion of radium in natural cavities and paths; (4) irradiation by means of radium that is applied to the skin in movable applicators, and (5) distant irradiation with radium, which is used in deep lying cancers, similar to a roentgen tube, and applied in a movable apparatus with thick walls of lead, permitting the irradiation of a restricted field.

By means of numerous pictures and tables, the various fields of application of radium were demonstrated and the results obtained since 1919 were recounted. Cancers of the tongue, the skin, the lips and the neck of the uterus were taken as examples. Of 367 patients with cancer of the tongue or of the floor of the mouth, a definitive cure was effected in eighty-two, or 23.6 per cent, and in sixty-nine, or 20 per cent, a cure of the primary localization was brought about, though death resulted later from glandular metastases. Of the lip cancers occurring during the period from 1920 to 1926, sixty-two were operable, fifty-six of which, or 91.9 per cent, were cured; five patients developed glandular metastases, and in one treatment was a failure. Of twenty-two patients on the borderline of operability, sixteen, or 72.7 per cent, were cured, while in four out of twenty-eight inoperable cases, cures were effected. In the treatment of carcinoma of the neck of the uterus, either tubes were placed in the cervix uteri and in the vagina, or distant irradiation was resorted to. In the first stage, the same good results were secured as with surgical treatment. In the second stage, almost the same results were obtained with the combination of the two methods of irradiation. In the third stage still, radiologic treatment was often successful, but not in the fourth stage. In this field, therefore, radiologic treatment is superior to surgery, doubtless because of the histologic structure of these carcinomas. Of 678 cases observed since the year 1919, 610 remain as suitable for statistical purposes. In 183 of these, or 30 per cent, cures were effected. In studying the complete statistics of cures effected since 1919, it is easy to note the progress of technic from year to year. In the first year, there was only 8 per cent of cures; in 1920, 17.9 per cent; in 1922, 26.6 per cent, and in 1923, 32 per cent. The percentage of cures extending over a period of five years was, for 1919, 0; for 1920, 20; for 1921, 40; for 1922, 80, and for 1923, 81.8. Cures were effected in a considerable number of inoperable cases: in 1919, in 3 per cent; in 1920, in 15 per cent; in 1922, in 17 per cent, and in 1923, in 28 per cent, the cures extending over a period of five years or more. These excellent therapeutic results are due, in part, to the fact that the institute succeeded in procuring a large supply of radium (7 Gm.), and thus was able to use 4 Gm. of radium for deep therapy with distant irradiation.

At the same session, Dr. Canti of London presented a film showing living cell cultures and the effects of radium irradiation on these. The film showed at first the normal cell growth in the periosteum of the chicken embryo, and then the rat sarcoma of Jensen. It was possible to observe very clearly the growth of fibroblasts and the migration of macrophages. Also, cell division in its finest processes was made visible to the eye. The second part showed the retarding action of radium irradiation on cell growth and motion. An especially impressive last part revealed the kinematography of cells in the dark field, in which the mitochondria could be followed very plainly.

The Crusade Against Rickets

According to Prof. Dr. Langstein, director of the federal institute for combating infant mortality in Germany, who addressed the Berliner medizinische Gesellschaft recently, there are a great many external factors involved in the development of rickets, when the predisposition to the disease is present: defects of nutrition (a diet too rich in fats), errors in general care, a lack of fresh air, and not allowing infants enough sunshine (curtains of baby cabs carefully drawn to prevent the entrance of all sunlight). Rickets may therefore be cured through correct diet and correct care, though that is not always so easy. The effects of cod liver oil, which was introduced in Vienna by Kassowitz as cod liver oil with phosphorus, are sometimes uncertain for the reason that it is not always correctly prepared. Therefore, the Norwegian government is endeavoring to produce a standardized cod liver oil that contains the correct amount of irradiated ergosterol, which, as Windaus in Göttingen and Hess in America have demonstrated, is the active principle in the cure of rickets. As so many persons object to taking cod liver oil, the attempt to generalize its use meets with great resistance, so that a prophylactic treatment cannot be generally carried out. This is true also with ultraviolet irradiation; in order to make it useful, special

centers are required, which the busy mother must visit regularly with her child. She has not the time for such daily jaunts, aside from the fact that such centers may become sources of contamination with infectious diseases. However, irradiated ergosterol, which has now appeared on the market in various forms, can be added to the milk of infants, as the quantities required are very small. Langstein states that, in his experience, severe cases of rickets can be cured in from six to eight weeks by this method, nor has he ever seen any harm resulting from its use. However, Prof. Dr. Degkwitz, who took up the discussion at this point, stated that he had used such remedies in treating tuberculous children and had observed injuries of the kidneys and other disorders, when unwise mothers, acting on the belief that "much will help more," had given too large quantities. If such errors are to be prevented, one must (if a general crusade against rickets is to be the watchword) give the children milk that has been irradiated in the dairies. If the irradiation is properly carried out, the life-giving principles of the milk will be retained, and likewise the taste will remain unchanged. A sufficiently marked effect may be secured if one part of irradiated milk and three parts of ordinary milk are mixed. Professor Degkwitz stated that it costs only 1¼ cents a quart to irradiate milk, but it retails in various places at from 15 to 20 cents a quart, which is too expensive for laborers' families. Summer diarrhea in infants is now pretty well controlled, and infant mortality has been thereby much reduced. If rickets also can be done away with, the mortality will be lowered still further, since the second main cause of death in winter is pneumonia, which occurs commonly in rachitic children.

The Operation in Magdeburg of the Federal Law Pertaining to the Combating of Venereal Diseases

As a future basis by which to judge the effects of the new federal law pertaining to the combating of venereal diseases, a special census was taken in Magdeburg in October, 1927, at which time the law went into effect. By comparing previous records with the statements made in the questionnaires sent out, it was found that, with an approximately stationary population, the absolute number of treated cases of venereal disease had increased from 1,298 in 1913 to 1,668 in 1927. There was a considerable increase of venereal disease in women. In 1913, only one fifth of the cases of gonorrhea were in women, but in 1927 the proportion had increased to one third. The proportion of women with syphilis had increased from one third up to one half. The number of women with venereal disease per thousand of population was found to have doubled from 2.2 to 4.5 per thousand. The number of men with venereal disease (counting only those who submitted to treatment) had decreased from 6.7 to 6.44 per thousand of population. Soft chancre had almost disappeared. The percentage of cases of syphilis had remained about the same, while the percentage of gonorrhea was higher than is usually found in large cities.

Marriages

WALTER G. ELLIOTT, Cuthbert, Ga., to Miss Cora Belle Brewton of Atlanta, Dec. 8, 1929.

ROBERT B. RIDLEY, JR., Atlanta, Ga., to Mrs. Lillian Taylor Jones of Decatur, January 16.

GEORGE D. MULLIGAN, Norristown, Pa., to Miss Elizabeth Bean of Lansdale, January 9.

JOHN S. WIER, Lacon, Ill., to Miss Dixie Lois Davis of Halstead, Kan., in February.

EUGENE T. KENNEDY to Miss Mary Brady, both of Philadelphia, January 26.

ETHEL D. PILLION, Lorain, Ohio, to Mr. J. Minnich, February 24.

Deaths

John Monro Banister ⊕ Col., U. S. Army, retired, Omaha; University of Virginia Department of Medicine, Charlottesville, 1878; emeritus professor of tropical medicine, University of Nebraska College of Medicine; entered the regular army as assistant surgeon in 1879 and was promoted through the various grades to that of colonel, being retired in 1910 at his own request after thirty years of service; member of the American Academy of Ophthalmology and Oto-Laryngology, and the American Laryngological, Rhinological and Otological Society; past president of the Nebraska State Medical Association; aged 74; died, January 31, of hypostatic pneumonia, following cystitis.

James Moores Ball, Jr. ⊕ St. Louis; State University of Iowa College of Medicine, Iowa City, 1884; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly editor of *Annals of Ophthalmology;* author of "Ball's Modern Ophthalmology" and "Andreas Vesalius the Reformer of Anatomy"; aged 66; died, March 1, of heart disease.

Howard Bratton ⊕ Elkton, Md.; University of Pennsylvania School of Medicine, Philadelphia, 1885; secretary of the Cecil County Medical Society; on the staff of the Union Hospital of Cecil County; formerly member of the state board of health; aged 69; died, February 26, of pneumonia.

Frederick M. Kimsey, Ducktown, Tenn.; Vanderbilt University School of Medicine, Nashville, 1890; part owner of the Kimsey-Guinn Hospital; aged 58; died, February 9, in a hospital at Atlanta, Ga., of embolism following an operation for empyema of the gallbladder.

Isaac Joseph D. Franklin ⊕ Chicago; Rush Medical College, Chicago, 1901; formerly on the faculty of his alma mater; on the staffs of the Norwegian-American and Lutheran Deaconess hospitals; aged 57; died, February 27, of chronic nephritis and uremia.

Mordecai Alva Sutton, Avonmore, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1895; member of the Medical Society of the State of Pennsylvania; for twenty-seven years member of the school board; aged 67; died, January 8, of lobar pneumonia.

William Washington Coldham ⊕ Toledo, Ohio; Trinity Medical College, Toronto, Ont., Canada, 1886; for many years on the staff of St. Vincent's Hospital; aged 64; died, February 15, in a hospital at Pasadena, Calif., of thrombosis and pulmonary infarction.

William Riley Sparks ⊕ Pendleton, Ind.; Indiana University School of Medicine, Indianapolis, 1908; served during the World War; past president of the Madison County Medical Society; aged 46; died, March 2, at St. John's Hospital, Anderson, of septicemia.

Robert L. Hamilton, Richmond, Mo.; Marion-Sims College of Medicine, St. Louis, 1891; member of the Missouri State Medical Association; aged 62; died, January 24, at St. Joseph's Hospital, Kansas City, of carcinoma of the liver and heart disease.

Laurence Theodore Smith ⊕ Newton, Kan.; Northwestern University Medical School, Chicago, 1898; served during the World War; aged 61; on the staff of the Bethel Deaconess Home and Hospital, where he died, February 7, of portal cirrhosis.

Michael Ricard Donovan, Lynn, Mass.; Harvard University Medical School, Boston, 1883; member of the Massachusetts Medical Society; formerly health officer and chairman of the board of health of Lynn; aged 68; died, February 1, at Salem.

Johannes K. Moen, Minneapolis; University of Minnesota College of Medicine and Surgery, 1893; aged 61; died, February 5, at the Lutheran Deaconess Hospital, of cellulitis of the scalp, following laceration caused by a fall down the stairs.

Will B. Salin, Glencoe, Ky.; Louisville Medical College, 1888; member of the Kentucky State Medical Association; past president of the Scott County Medical Society; formerly health officer of Owen County; aged 61; died, January 17.

Melvin Taylor Brumbaugh, Foraker, Ind.; Curtis Physio-Medical Institute, 1885; member of the Indiana State Medical Association; aged 74; died, February 14, of pneumonia, following a fracture of the arm received in a fall.

Eugene Grisson Denson, Meridian, Miss.; University of Maryland School of Medicine, Baltimore, 1898; member of the Mississippi State Medical Association; served during the World War; aged 55; died, February 20.

William Thomas Williamson, Richmond, Va.; University of Louisville (Ky.) School of Medicine, 1886; served during the World War; connected with the U. S. Veterans' Bureau; aged 64; died, February 17, of pneumonia.

John H. Gardner, Stoyestown, Pa.; Eclectic Medical Institute, Cincinnati, 1883; Chicago Homeopathic Medical College, 1892; for many years member of the school board; aged 71; died, February 5, of cerebral hemorrhage.

Alvey J. Smith, Wolfsville, Md.; University of Maryland School of Medicine, Baltimore, 1898; member of the Medical and Chirurgical Faculty of Maryland; aged 63; died, January 12, of acute bronchitis and asthma.

Walter Henry O'Neal, Gettysburg, Pa.; University of Maryland School of Medicine, Baltimore, 1871; member of the Medical Society of the State of Pennsylvania; aged 79; died, in February, of heart disease.

Charles Smiley Vivian ⊕ Phoenix, Ariz.; University of Colorado School of Medicine, 1913; member of the American Urological Association; aged 39; died, February 6, of pneumonia, following influenza.

James A. Bolin, Somerset, Ky.; Barnes Medical College, St. Louis, 1898; member of the Kentucky State Medical Association; served during the World War; aged 57; died, February 18, of heart disease.

Frederick Louis Kreicker, Sandlake, N. Y.; Albany Medical College, 1911; member of the Medical Society of the State of New York; health officer of Sandlake; aged 50; died, January 26, of pneumonia.

William R. Goodman, Washington, D. C.; Georgetown University School of Medicine, Washington, 1870; Civil War veteran; aged 85; died, February 20, of cerebral hemorrhage and arteriosclerosis.

Reuben Martin Bonar, Santa Rosa, Calif.; Ohio Medical University, Columbus, 1893; member of the California Medical Association; veteran of the Spanish-American War; aged 59; died, Dec. 19, 1928.

Robert Henry Sunkle ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1898; on the staff of the Evangelical Lutheran Hospital; aged 65; died, February 16, of heart disease.

Martin Long ⊕ Custer, S. D.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1906; aged 59; died, January 5, at Hot Springs, of pneumonia, following influenza.

M. Wylie Armstrong, Olive Hill, Ky.; Kentucky School of Medicine, Louisville, 1894; member of the Kentucky State Medical Association; aged 58; died, February 16, of heart disease.

Elmer Howard Smith, La Cumbre, Colombia, S. A.; Creighton University School of Medicine, Omaha, 1909; conductor of a hospital in La Cumbre; aged 45; died, Nov. 29, 1928.

James Irwin Rathburn, Russell, Ky.; Starling Medical College, Columbus, 1904; aged 47; died, March 1, as the result of a cerebral hemorrhage which occurred several months ago.

Maximilian Roedmann, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1903; aged 51; died, March 2, at the Hahnemann Hospital, of septic endocarditis.

Eugene Gray Covington ⊕ Bloomington, Ill.; Howard University School of Medicine, Washington, D. C., 1899; aged 56; died, February 3, at the Mennonite Hospital, of pneumonia.

Walter Hand Phillips, Cape May, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1892; aged 59; died, February 24, at San Francisco, of chronic myocarditis.

Wiley Prentice Gilstrap, Wheelock, Texas; Memphis (Tenn.) Hospital Medical College, 1891; aged 61; died, Dec. 15, 1928, at the Baptist Hospital, Houston, of heart disease.

James Ernest Pollock ⊕ New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1906; aged 44; died suddenly, in February, of heart disease.

Herbert Rozelle Norton, Boston; University of Buffalo School of Medicine, 1891; member of the Massachusetts Medical Society; aged 66; died, January 30, of arteriosclerosis.

A. M. Bilby, Galva, Iowa; College of Physicians and Surgeons, Keokuk, 1882; formerly mayor, councilman and county coroner; aged 73; died, February 3, of diabetes mellitus.

Oliver Ketchem Harris, Ellettsville, Ind.; Louisville (Ky.) Medical College, 1896; member of the Indiana State Medical Association; aged 57; died, February 10, of influenza.

Ernest Ruel Jellison, Maynard, Minn.; University of Michigan Medical School, Ann Arbor, 1883; aged 68; died, January 28, at New Auburn, of cerebral hemorrhage.

Howard B. Hills, Youngstown, Ohio; Pulte Medical College, Cincinnati, 1888; aged 79; died, February 14, at St. Elizabeth's Hospital, of carcinoma of the pancreas.

Michael Joseph Keane, Brantford, Ont., Canada; University of Toronto Faculty of Medicine, 1887; Trinity Medical College, Toronto, 1887; aged 66; died recently.

George R. Conard ⊕ New Vienna, Ohio; Medical College of Ohio, Cincinnati, 1865; Civil War veteran; aged 87; died, February 15, of nephritis, following influenza.

Stanley Francis Berry ⊕ Oakland, Calif.; University of Vermont College of Medicine, Burlington, 1914; aged 41; died, February 26, of coronary embolism.

Rene A. Murphy, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1889; aged 62; died, February 20, of heart disease.

James B. Pendergrass, Jefferson, Ga.; Kentucky School of Medicine, Louisville, 1876; also a druggist; formerly mayor; aged 76; died, in January, of uremia.

Phillip Isard Froude ⊕ Detroit; Detroit College of Medicine and Surgery, 1905; served during the World War; aged 48; died, February 19, of pneumonia.

T. Edwin Baird, Norfolk, Va.; Medical College of Virginia, Richmond, 1890; member of the Medical Society of Virginia; aged 65; died, January 6.

James Andrew Edwards ⊕ Columbia, Tenn.; Medical Department University of Tennessee, Nashville, 1888; aged 64; died, February 16, of cholelithiasis.

Theobald Coleman, Hamilton, Ont., Canada; Trinity Medical College, Toronto, 1893; University of Toronto Faculty of Medicine, 1893; died, Dec. 5, 1928.

Junius C. Gregory, Tunstall, Va.; Jefferson Medical College of Philadelphia, 1859; Civil War veteran; aged 91; died, in February, of heart disease.

William Lee Milner, Cincinnati; Miami Medical College, Cincinnati, 1899; aged 53; died, February 24, of endocarditis due to *Streptococcus viridans.*

Joseph F. Flinn ⊕ Hutto, Texas; Memphis (Tenn.) Hospital Medical College, 1901; aged 59; died, January 9, of malignancy within the chest.

John Sterling Moore, Magnolia, Miss.; Memphis (Tenn.) Hospital Medical College, 1902; aged 49; died suddenly, February 17, of heart disease.

George W. Bucklin ⊕ Muncie, Ind.; Bellevue Hospital Medical College, New York, 1879; aged 78; died, February 12, of bronchopneumonia.

Bert Joseph Wadey ⊕ Belleville, Wis.; Rush Medical College, Chicago, 1897; aged 54; died suddenly, January 11, of cerebral hemorrhage.

F. Counsel Herring, Whigham, Ga.; Atlanta College of Physicians and Surgeons, 1904; aged 51; died, in February, of pernicious anemia.

Walter R. Abney, Lake Arthur, La.; Kentucky School of Medicine, Louisville, 1892; aged 59; died, February 8, of paralysis agitans.

Aaron Kern ⊕ Louisville, Ky.; Northwestern University Medical School, Chicago, 1898; aged 51; died, February 9, of heart disease.

Charles Edwin Shay ⊕ Boston; Tufts College Medical School, Boston, 1904; aged 48; died, January 29, of pulmonary tuberculosis.

Newton J. Rains, Rosine, Ky.; Louisville Medical College, 1875; aged 80; died, February 13, of pneumonia, following influenza.

John Ege, Reading, Pa.; Hahnemann Medical College of Philadelphia, 1883; aged 74; died, January 23, of pernicious anemia.

Addison Winter Hitt, Los Angeles; Louisville (Ky.) Medical College, 1888; aged 64; died, January 3, of angina pectoris.

Harry Levi Day ⊕ Odin, Ill.; Chicago Homeopathic Medical College, 1899; aged 56; died, January 24, of pneumonia.

Albert Carey, Delake, Ore.; Cleveland Homeopathic Medical College, 1898; aged 58; died, January 14, of influenza.

David B. Eaton, Chicago; Chicago Medical College, 1882; aged 74; died, March 12, of heart disease.

William B. Duke, Richwood, Ohio (licensed, Ohio, 1896); aged 86; died, February 22, of pneumonia.

Bureau of Investigation

THE QUESTIONNAIRE NUISANCE

Expert Testimony at the Price of a Postage Stamp

One of the many by-products of the modern art of advertising is the advertising agency, whose business it is to prepare advertising campaigns for those who wish to cry their wares in the market places. Many of these agencies employ bright young men who are adept word-mongers and in many of whom there seems to be a tendency not to let a fact stand in the way of a convincing claim or an apt phrase. Out of the business of preparing advertising campaigns has grown one of the most intolerable nuisances that ever plagued the medical profession —the questionnaire. The fault, let us admit, rests primarily

MEDICAL RESEARCH BUREAU
1300 JACKSON BOULEVARD
CHICAGO

February 11, 1929

Dr. [redacted]
[redacted] Iowa.

Dear Dr. [redacted]:

We are conducting a confidential investigation to determine the modern trend toward dispensing by physicians. The ultimate object is to increase efficiency in distribution and lower the selling prices of pharmaceuticals sold direct.

Will you be kind enough to please fill out the answers to the questions shown below and return? If you care to have us do so we will be glad to furnish you with a summary of the answers to this questionnaire, which is being mailed to all parts of the country.

If possible, please mail this back to us in the enclosed envelope by return mail as we hope to have this information in our hands and summarized by February 20.

Yours very truly,

R T Herz

RTH/A Director

Do you prescribe?_____

Do you dispense?_____

If you dispense, will your yearly purchases be in excess of $50?_____ $250?_____ $750?_____

P.S. The enclosed envelope is stamped and self-addressed.

Reproduction (greatly reduced) of a questionnaire sent out under an imposing name by a Chicago advertising concern.

on those of us who, with easy-going tolerance, give for the asking, expert opinions that are based on much work and special study and have, therefore, a correspondingly high commercial value.

The questionnaires that come to physicians are of two types —those that frankly emanate from advertising agencies and sail under no false colors; and others, which while also emanating from advertising agencies, are camouflaged with names which, usually, incorporate such words as "medical," or "research" or "bureau." As examples of a few of the questionnaires with which the profession has been plagued during the past two or three years, consider the following:

In May, 1926, Lord and Thomas, advertising agents of Los Angeles, sent letters to dermatologists stating that, in the interests of their client—the California Fruit Growers Exchange—they were "making a special investigation on the effects of lemon juice when used as a hair rinse" and would be grateful if the physician would fill in and return the list of questions attached. There were nine questions asked, each one of them technical and calling for special knowledge, if answered correctly. Yet, this agency, apparently, expected physicians to furnish this information for no other reason than that they sent out these questionnaires and included a stamped, addressed envelope. The reaction of a well-known eastern dermatologist to this particular piece of circularization is worth giving. Instead of returning the questionnaire filled out as requested, he wrote to the agency:

"If your client desires to investigate the effect of lemon juice as a hair rinse, I have no doubt that you can employ reputable experimenters to make such an investigation. Your request for filling out of questionnaire and obtaining of information gratuitously from physicians, I consider an excellent example of colossal nerve and impertinence."

In the spring of 1927 another advertising agency, this time in New York—Lord and Thomas and Logan—circularized a large number of physicians in the interests of the manufacturers of "Lucky Strike Cigarettes." The letter was written frankly on the company's stationery. It stated, at the outset, that the physician to whom the questionnaire was addressed was being sent a carton of 100 Lucky Strike cigarets from the agency's client, the American Tobacco Company. The physician was asked to accept the cigarets and to feel that he was under no obligation to comply with the request for information that followed. The questionnaire consisted of a card carrying two questions reading as follows:

"1. In your judgment is the heat treatment, or toasting process, applied to tobacco previously aged and cured, likely to free the cigaret from irritation to the throat?

"2. Do you think from your experience with LUCKY STRIKE Cigarets, that they are less irritating to sensitive or tender throats than other cigarets, whatever the reason?"

Certainly, not one physician in a thousand is competent to answer the first question, yet the exploiters of Lucky Strike cigarets now claim that 18,781 physicians answered that question in the affirmative! It is further claimed that 20,679 physicians answered "Yes" to the second question.

Another agency, Williams and Cunnyngham, went to the profession in the summer of 1927, seeking advertising data from an authoritative source on asthma and hay fever. This letter, also, frankly showed that it was from an advertising agency. Some of the information called for was the percentage of the physician's patients that have hay fever and the percentage that have asthma, the sex percentage of each, and also various age-group percentages. There were, too, some detailed questions on the physician's methods of treatment of hay fever and asthma, as well as some calling for data on the results of such treatment. There were questions, also, covering the "curative agents used" in treating hay fever. All of this information, apparently, Williams and Cunnyngham felt they were entitled to, at a no greater expenditure of money and energy than that of printing the questionnaire and spending four cents in stamps!

In January of this year physicians received a questionnaire from "The Editors" of the *Medical Review of Reviews*. It was addressed, apparently, to dermatologists, and incidentally, one wonders whether this particular medical group happens to be an easier mark than any other, or whether they are badgered more with questionnaires because of the large advertising campaign on various soaps and ointments. The Editors of the *Medical Review of Reviews* stated that they were "conducting a survey of methods of washing the hands to insure freedom from skin diseases, preservation of line and contour, etc." The specific questions put to the dermatologists were:

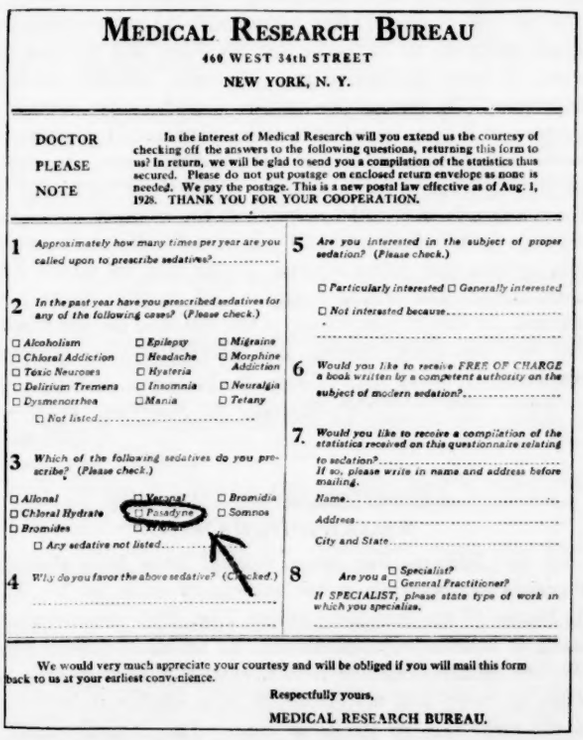
"Do you, for instance, recommend washing the hands in hot, or lukewarm water? Do you recommend white or colored soaps; those that are perfumed or those free from odor?"

The letter from the editors closed with a paragraph stating that the physician's comments would be "given out to the press for the benefit of the lay public," unless the physician advised to the contrary. One familiar with the advertising pages of the *Medical Review of Reviews* is led to wonder whether this request for free information might have any relation to a possible advertising contract for somebody's soap!

The cases just cited, while objectionable, are at least free from any element of deceit. If physicians answer such questionnaires, they do so under no misapprehension. There are, however, some agencies that work less frankly. THE JOURNAL dealt

with one case, editorially, in the issue of December 8, 1928.[1] This had to do with the rather imposingly named "National Research Bureau" of Cincinnati, which sent out a questionnaire —also to dermatologists. Investigation proved that the National Research Bureau was a fancy name used by Procter and Collier Company, an advertising agency.

More recently physicians have received questionnaires from two concerns of the same name but of different origins—the "Medical Research Bureau." One of these operates from New York City, the other from Chicago. Both questionnaires are reproduced in miniature with this article. It will be noticed that the questions from the New York concern deal with the use and prescribing of sedatives, both official and proprietary. On investigation, it appears that the Medical Research Bureau at 460 West 34th Street, New York City, is a name used by a corporation interested in direct-mail advertising, which is gathering data that are to be used by John B. Daniel, Inc., Atlanta, Georgia, makers of "Pasadyne," an unscientific nostrum that has been dealt with at different times in these pages.



MEDICAL RESEARCH BUREAU
460 WEST 34th STREET
NEW YORK, N. Y.

DOCTOR
PLEASE
NOTE

In the interest of Medical Research will you extend us the courtesy of checking off the answers to the following questions, returning this form to us? In return, we will be glad to send you a compilation of the statistics thus secured. Please do not put postage on enclosed return envelope as none is needed. We pay the postage. This is a new postal law effective as of Aug. 1, 1928. THANK YOU FOR YOUR COOPERATION.

1 Approximately how many times per year are you called upon to prescribe sedatives?.....

2 In the past year have you prescribed sedatives for any of the following cases? (Please check.)

☐ Alcoholism ☐ Epilepsy ☐ Migraine
☐ Chloral Addiction ☐ Headache ☐ Morphine Addiction
☐ Toxic Neuroses ☐ Hysteria
☐ Delirium Tremens ☐ Insomnia ☐ Neuralgia
☐ Dysmenorrhea ☐ Mania ☐ Tetany
☐ Not listed.....

3 Which of the following sedatives do you prescribe? (Please check.)

☐ Allonal ☐ Veronal ☐ Bromidia
☐ Chloral Hydrate ☐ Pasadyne ☐ Somnos
☐ Bromides ☐ Wheat
☐ Any sedative not listed.....

4 Why do you favor the above sedative? (Checked)
.....
.....

5 Are you interested in the subject of proper sedation? (Please check.)

☐ Particularly interested ☐ Generally interested
☐ Not interested because.....
.....

6 Would you like to receive FREE OF CHARGE a book written by a competent authority on the subject of modern sedation?.....

7 Would you like to receive a compilation of the statistics received on this questionnaire relating to sedation?.....
If so, please write in name and address before mailing.
Name.....
Address.....
City and State.....

8 Are you a ☐ Specialist? ☐ General Practitioner?
If SPECIALIST, please state type of work in which you specialize.
.....

We would very much appreciate your courtesy and will be obliged if you will mail this form back to us at your earliest convenience.

Respectfully yours,
MEDICAL RESEARCH BUREAU.

Reproduction (greatly reduced) of a questionnaire sent out by an advertising concern that is said to be collecting the information for the manufacturers of the nostrum "Pasadyne." The "ring" and the arrow were added in THE JOURNAL office before the questionnaire was photographed.

The "Medical Research Bureau" of Chicago is an entirely different concern. At the address 1300 Jackson Boulevard, is a building occupied by Buckley Dement and Company, which, also, is a concern that is interested in direct-mail advertising. It appears, from what we can learn, that the object of the Buckley Dement and Company questionnaire is to find out whether or not physicians would be interested in a profit-sharing method of supplying drugs in quantities direct from the wholesaler.

To the three last named schemes—the National Research Bureau of Cincinnati and the two Medical Research Bureaus of New York and Chicago, respectively—there are the objections already raised to the entire questionnaire business, but, in addition, there is the even greater objection that they are attempts to deceive. There is no excuse for any reputable advertising concern's trying to get an entrée to the medical profession by posing as a national or a medical "Research Bureau." However, the entire questionnaire scheme is an unmitigated nuisance, and, as THE JOURNAL has said before, physicians should make a routine practice of consigning to the wastebasket every questionnaire that asks for free advice and comes from commercial or unknown sources. Until this is done, the profession may expect to be badgered by those advertising agencies that are anxious to get for nothing information that, if they are entitled to it, should be paid for.

1. "The National Research Bureau Questionnaire," J. A. M. A. **91**: 1809 (Dec. 8) 1928.

Correspondence

INTRADERMAL VACCINATION

To the Editor:—In THE JOURNAL, Nov. 17, 1928, Armstrong critically reviewed an article of ours on the subject of "Intradermal Vaccination" (*Am. J. Dis. Child.* **35**:186 [Feb.] 1928).

In 1922, we decided to admit smallpox patients directly to the wards of the Contagious Disease Hospital. Before such admissions took place, we knew that the percentage of takes with the older methods (scratch, scarification, and the like) was not high enough or not certain enough, at least in our hands, to allow the indiscriminate exposure of patients admitted as a routine to those with active smallpox. For that reason we tried the intradermal method. We reasoned that patients might not always have a resultant take but we always knew that they got a certain amount of potent vaccine injection. All vaccines were tested by the Paul method for potency before being used.

In some of our experiments, we vaccinated the same person synchronously with various methods. Armstrong states that "synchronous vaccinations of the same individual are hardly a suitable procedure for determining the relative susceptibility of different methods." In other experiments, we had occasion to do multiple injections of vaccine virus intradermally into the same patient and were able to show that the injection of vaccine virus in the same amounts at different places in the same arm at the same time was always followed by a take in every place vaccinated in a susceptible individual. Never did we get a positive take in one place and a negative reaction in another.

That synchronous vaccination leaves no way of apportioning any general reaction to the respective methods is true; but we were not, in this particular experiment, comparing general reactions but merely showing that one method might be followed by a take while another would give no take when the same individual was used for the experiment.

Armstrong questions the advisability of diluting vaccine virus with saline solution. The vaccine was also diluted when vaccinations were done intradermally without any effect on the reactions, although it may, as Armstrong suggests, play a part in preventing a take when we use the scratch method.

Dr. Armstrong states that the "pain of the method [intradermal vaccination] is not due chiefly to the puncture of the needle but largely to the distention of the tissue by the injected fluid." What the pain is due to and which method gives more pain are two different questions. Granting that the fluid distention contributed the most to the momentary pain felt, experience will soon convince one that there is less pain accompanying the intradermal method than with the "scratch method" previously used by us.

Dr. Armstrong states that we did not describe our "scratch method." We used the method as described in the army circulars for use by army surgeons. With this method, "the skin is made taut and a needle drawn over this area a few times with a force sufficient to pierce the epidermis, but not to draw blood. The vaccine is then rubbed into the scratched area and allowed to dry." No occlusive dressings were used.

In considering our third point, the author states that there was "nothing in the article to indicate that the method was actually tried in a single case of eczema, erysipelas or other skin conditions." Every patient admitted to the Contagious Division of the Cleveland City Hospital is vaccinated on admis-

sion. Taking the period from January, 1923, to August, 1927, we find that there were 8,146 patients admitted to our divisions. Of these, 503 had erysipelas, nineteen had eczema, eighteen had erythema (induratum, multiforme or nodosum) and ten had pemphigus. We do not know just what proportion were first vaccinations, but we do know that all the patients were vaccinated intradermally and in not one did intradermal vaccination effect or extend the original clinical condition for which they were admitted.

We had stated that the intradermal method produces vaccination in persons who previously have been unsuccessfully vaccinated. Armstrong admits this point and then states that "it is what might be expected when it is remembered that the intradermal method as advocated by Toomey and Hauver provides for the injection . . of about 2,500 times the amount of virus introduced through a Pirquet drill excoriation." Our conclusion is admitted and supported, as Armstrong states, by the previous work of Force (*Pub. Health Rep.* **42:**1031 [April 15] 1927) and Wright (THE JOURNAL, Aug. 24, 1918, p. 654). His objection, then, must be to the dosages used. This objection could be valid only if the dose injected was deleterious to the patient. This has not been our experience.

Armstrong further states that "the authors do not make any mention of the theoretical objections to the introduction into or beneath the skin of a relatively large quantity of material which is not always sterile." He states that this objection was not entirely theoretical, as eight cases of secondary infection with abscesses occurred. No comment is necessary on the fact that eight patients out of 9,000, i. e., 0.00088 per cent of the patients vaccinated, had local secondary infections.

Again, to substantiate the point that the injection of a large amount of material not always sterile is objectionable, we are quoted as stating that "practically all our patients had some fever, starting as early as six days or as late as fourteen days after vaccination and lasting from one to four days with systemic reactions often sufficient to cause the persons vaccinated to go to bed and to cause a rise of temperature, in many cases as high as 104 F." This is true. We always found fever. It is true also that the patient is often sick enough to go to bed. The real question, however, is: Do more people have reactions or are the reactions, if present, more severe following the intradermal method? Compared to the scratch or scarification method we had used previously, we would state that we had fewer and, on the whole, milder reactions following the intradermal method.

Armstrong states that while "Toomey and Hauver have not considered the danger from a possible error in dosage as a disadvantage of the intradermal technic, their article furnishes us an example of the fact. In their original paper, the dosage is given as '1 cc. of a one to four dilution from bulk or capillary vaccine.' In a reprint of this article it is noted, among other changes, that the dosage is given as 0.1 cc. of the same dilution."

The phrase "among other changes" in the text quoted and the language in the sentence beginning the second last paragraph of the critic's article are unwarranted by the facts. This sentence begins, "We furthermore regret that Toomey and Hauver have permitted certain errors to appear in their original article, which can hardly be assumed to be typographic in nature."

What were these changes? In one of our tables, the word "months" appeared instead of "weeks." This error was in the table of some experiments done as far back as 1924 and 1925. It was called to our attention by the United States Public Health Service and immediately corrected by us. Curiously enough, the point made in this table had nothing whatever to do with intradermal vaccination, but was merely illustrating an experiment showing that vaccines are not always potent.

Armstrong has referred to another mistake, supposedly of ours; i. e., the change in dosages. The facts are these: Our original paper as submitted to the editor of the *American Journal of Diseases of Children* read "0.1 cc. of a one to four dilution." It was printed "1 cc." We called the publisher's attention to the error when it appeared. The answer to our letter stated: "It seems that the manuscript editor in ringing '0.1 cc.,' meaning to spell out the term, drew her line through the '0,' and the typesetter and proofreader interpreted this to mean that '0' was to be stricken out. We assure you that we regret it and will publish a correction in the next issue."

Since our article was written, we have vaccinated more than 2,689 patients further admitted to the Contagious Hospital. This included 139 patients with erysipelas, five with eczema, one with erythema multiforme and four with erythema induratum. We do not know the exact number of nurses, physicians and employees we have vaccinated, but it nears 300. Last year, 120 children who had never been vaccinated were admitted to an orphanage over which we have charge and all were successfully vaccinated by the intradermal method.

In all, more than 12,000 individuals have been vaccinated intradermally by us or under our direction, and for our institution, at least, we believe it is the most efficient method of vaccination. At present the technic consists in the intradermal injection of 0.1 cc. of saline vaccine dilution. If a group is to be vaccinated, the contents of the capillary tubes are expelled and then 3 drops of saline solution is added for each tube used. If a single person is to be vaccinated, the contents of the capillary tube is sucked up into a 27 gage needle attached to a tuberculin syringe and saline solution drawn into the barrel to the 0.2 cc. mark. The syringe is then rolled about to secure a good mixture. In either case, 0.1 cc. of the dilution, the same amount used for the Dick, Schick and tuberculin test, is injected intradermally.

JOHN A. TOOMEY, M.D.,
ROBERT B. HAUVER, M.D.,
Cleveland.

ARSPHENAMINE VERSUS NEOARSPHENAMINE

To the Editor:—For many years I have been thoroughly convinced of the truth of the statements made by Dr. Henry H. Hazen (THE JOURNAL, March 2, p. 696) that neoarsphenamine is inferior to arsphenamine as an antisyphilitic remedy.

When neoarsphenamine first appeared, I used it in a large series of cases, and arsphenamine in a similar series of cases of the same type at the same time. The clinical results distinctly favored arsphenamine, but the effect on the laboratory tests (blood and spinal fluid) was still more striking—so definite that I discontinued almost entirely the use of the newer remedy about fourteen years ago. I still use it occasionally in certain cases in which it seems advisable to begin with a less active arsenical. I feel satisfied that neoarsphenamine is not less toxic than arsphenamine as indicated by reactions in man, although different lots of both drugs vary somewhat. As Dr. Hazen states, it is because of the convenience of neoarsphenamine that it is more generally used, but to those who use arsphenamine daily this is a negligible factor. I grant that neoarsphenamine is less dangerous when used by those who treat syphilis only occasionally, because of the not infrequent failure to prepare arsphenamine properly for injection.

If the average medical man would give as much serious consideration to the legitimate literature on syphilis as he now gives to the articles and salesmen sent out by the manufacturing chemists, the great group of syphilitic patients would, in my opinion, be materially benefited. It takes a long time and a large experience by many workers to determine with any degree of certainty the efficiency of an antisyphilitic remedy, because of the varying degrees of virulence of the spirochete and the still greater variation in the reaction of individuals to the infection.

W. H. HOUGH, M.D., Washington, D. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF TUMORS FOLLOWING INJECTION OF OILS

To the Editor:—Please give me information as to treatment other than surgical to eliminate subcutaneous nodules on arms that have resulted from injections of eucalyptol, guaiacol and iodoform in oil base. In two cases in which injections were made several years ago, these nodules not only have persisted but seem to be increasing in size.

C. E. JUMPER, M.D., Torreon Coahuila, Mexico.

ANSWER.—Cutaneous tumors, the result of cutaneous and subcutaneous injections of oils, are not treated satisfactorily by measures other than surgical. The most reliable treatment at present consists of surgical removal of the foreign material and its surrounding reacting tissue, followed by proper roentgen therapy. This holds true for the "oil tumors" as well as for the genuine paraffinomas.

"THE STRENGTH OF SWEETNESS"

To the Editor:—It is important that the health advice in our papers and the essays on medical subjects in our magazines be raised beyond the level of pseudoscience. On this account I venture to ask your opinions regarding the accuracy and wisdom of a few statements published by a physician (Woods Hutchinson, M.D.) in an essay on "The Strength of Sweetness," in the March issue of the *Ladies Home Journal*. I quote verbatim:

1. ". . . every grain of the starch they [the cereals] contained was turned into sugar in the form of glucose before it was digested and burned" (p. 26).

2. ". . . it [sugar] shoots swiftly through the walls of the stomach into the blood and is pumped by the heart . . ." (p. 26).

3. "All hard-driven business men . . . and women should keep a supply of . . . raisins . . . in a drawer of their desks or benches. Then, if they begin to flag after the middle of the morning or during the afternoon, they should eat a small handful or so of these quick-action foods" (p. 26).

4. "Sugar has also been found a most valuable life-saver, mixed with a little salt solution and washed blood corpuscles and injected into a vein, after a dangerous hemorrhage" (p. 26).

5. ". . . and that is glucose, into which all our starch foods must be turned before they can be digested and burned in our bodies" (p. 67).

———, Connecticut.

ANSWER.—It is eminently desirable that public propaganda relating to the problems of health and prophylaxis against disease should be subjected to rigorous control on the part of those responsible for its publication. There is today no excuse for slipshod statements regarding a great mass of dependable information to which the intelligent public of the present day in this country is properly entitled. *Hygeia* was established with the object of performing a worth-while function in the enlightenment of the public regarding the contributions of the medical sciences and their applications to human and animal welfare. Many of the magazines and other regular publications are performing a similar service in commendable ways. The article on the use of sugar in the dietary to which our correspondent refers is for the most part accurate in established facts and at least defensibly debatable with respect to the writer's views on the uses and undervalued applications of the carbohydrate sucrose in the diet. But he has unfortunately committed a number of errors of statement or judgment that our correspondent has clearly detected. Referring to the quotations, readers need scarcely be reminded that carbohydrates (starches and sugars such as sucrose to which the essay refers) are digested in the alimentary tract to yield monosaccharides, notably dextrose (*d*-glucose) and fructose. After absorption they circulate as dextrose. Obviously it is erroneous to regard sugar or starch as being turned into dextrose "before it was digested." No one can seriously claim that starch must be changed to dextrose prior to its alimentary digestion. The second quotation implies that the stomach is an organ for absorption, whereas recorded investigations indicate that absorption even of water barely proceeds until the gastric contents have passed through the pylorus and entered the small intestine. At best sugars would "shoot" through the walls of the intestine rather than the stomach. We sympathize with our correspondent's antipathy to the generalized advice to all manner of persons to eat raisins for health. It is no disparagement to a generally wholesome food to rebel against making it a panacea for health. Besides the vaunted sugar, raisins contain a large amount of carbohydrates digestible with difficulty and prone to fermentation and to promote distress in misguided consumers. Raisins should be eaten in moderation by most persons and perhaps be abstained from by many. Even iron, not to mention sugar, can be found elsewhere. In referring to the use of sugar (by which is meant sucrose) for intravenous injection in physiologic solution of sodium chloride the writer has made a grave error. Dextrose (*d*-glucose), not sucrose, is the sugar compatible with such a process. Sucrose injected into the circulation leaves the body promptly through the kidneys, like a foreign substance.

The term "glucose" at times is ambiguous. While to the biochemist it generally means dextrose (*d*-glucose), to the laity it has come in general use as the term for a mixture of dextrose, maltose and dextrins, commonly known as corn syrup. This accounts for the logical position taken by the revision committee of the last pharmacopeia. The official terms—and the ones used by THE JOURNAL—are "Dextrose" (U. S. P.) when referring to the monosaccharide (*d*-glucose), and the term "Glucose" (U. S. P.) when referring to the syrupy mixture of dextrose, maltose and dextrins (corn syrup).

CALCIUM REQUIREMENT OF THE ADULT

To the Editor:—There seems to be considerable difference of opinion as to how much calcium the adult body needs daily. Many dietitians say the equivalent of a pint of milk.

M.D., New York.

ANSWER.—The method which permits of the most direct approach to a solution of the problem presented by our correspondent is that of the "balance experiment"; that is, a comparison of the total intake with the total output of calcium in man at different levels of dietary intake and a determination of the magnitude of the latter at which there will be no loss of the element to the organism. This represents a condition of "calcium equilibrium." Elaborate studies have been made by H. C. Sherman to ascertain the maintenance requirement of calcium. In his compilations the results were calculated to a uniform basis of 70 Kg. of body weight. On this basis, ninety-seven experiments show daily calcium outputs ranging from 0.27 to 0.82 Gm. and averaging 0.45 Gm. of calcium per man. The data of the individual experiments on which this average is based are summarized in the *Journal of Biological Chemistry* (**44**:21 [Oct.] 1920). The experiments included about equal numbers of men and women subjects. It must be remembered, however, that the calcium requirements of women are greatly increased by maternity. As Sherman has pointed out, the need of an abundance of calcium for the rapidly growing skeleton of an infant is obvious. Before birth, and normally for several months after birth, this demand of the child is satisfied through the mother, whose calcium requirement is thus greatly increased. The weakening of the bones and teeth which is said to be a common accompaniment of pregnancy and lactation is held to be largely due to a withdrawal of calcium from these structures to meet the nutritive requirement of the embryo or the nursling.

The foremost dietary source of calcium is cow's milk, which contains 0.12 per cent of the element. Accordingly, to insure an adequate margin of safety, at least a pint of milk (450 cc.) is called for (under conditions not involving the added needs of either pregnancy or lactation) to supply the requisite calcium if milk functions as the sole or at least the main dietary source of the element.

One cannot well consider the calcium content of milk without recalling other features of this food. A recent writer (Rose, Mary S.: Foundations of Nutrition) has summarized its nutrient virtues as follows: Milk owes its importance in the diet to the fine quality of its proteins and their supplementary value for the cereal proteins; to the completeness of its assortment of mineral elements and the excellent proportions in which they occur; to the high content of calcium, which makes milk almost indispensable for ideal storage of this element during growth; to the liberal amounts of vitamins A and B, which make a quart of milk a day a practical guarantee against deficiency of either; and to the presence of vitamin D in association with such a proportion of phosphorus to calcium as is most favorable to the calcification of bones and teeth. This is the only material in nature designed solely to serve as food; and, regularly used in liberal quantities, it is the best possible foundation for an adequate diet. Another aspect of the subject, dealing with the conditions of optimal rather than "average" nutritive effects, has been investigated by Sherman (Sherman, H. C., Food Products). It is possible to determine by means of studies with laboratory animals of rapid development, like the rat, the effect of different levels of milk consumption on

adult health when all other conditions of life are kept strictly uniform. This has been studied through several generations of experimental animals with results which show plainly that, starting with a dietary already adequate according to current standards, an increase in the proportion of milk up to approximately the equivalent of a quart of milk daily for every person greatly favors the growth and development throughout youth and confers improved health and vigor throughout adult life, actually postponing old age in the same individuals in which it has induced better growth and earlier maturity. Accordingly, Sherman concludes that in no other way can the food habits now prevailing, especially in the cities, be so certainly and economically improved as by a more liberal use of good milk.

QUESTION OF HEREDITY IN TUBERCULOSIS AND IN SYPHILIS

To the Editor:—In THE JOURNAL, January 19, is an article entitled "Hereditary Tuberculosis" which states that tuberculosis is held to be inherited not in the genetic sense but in the same sense as that understood in the term hereditary syphilis. In order to settle a question raised by several disputants, would you kindly define "hereditary in the genetic sense," and also "the sense as that understood in the term hereditary syphilis?" Is syphilis ever really inherited or is it simply contracted from the parent as it might be from outside sources? Can the germ plasm ever be affected by any infection in the parent? If a child of a syphilitic parent, or parents, is physically or mentally defective but without evidences of spirochetes in its body, and if there were no other defects in the family history, would such an inheritance be genetic? Are there any records showing the father syphilitic, the mother free from that infection, and the child syphilitic? In such a case would the inheritance be genetic? Please omit my name.

M.D., Washington.

ANSWER.—A character which is "hereditary in the genetic sense" must have its differential cause, its "gene" or "determiner," in the germ cell from which the particular individual develops. A spirochete or other micro-organism carried over with the male germ cell or acquired through the placenta or during traversal of the birth canal may transmit disease from one generation to the next and in that sense syphilis in the child might be termed "hereditary." The determiner of such a condition is not a part of the germ plasm, and the disease might better be referred to as "contracted from the parents."

Satisfactory proof that the germ plasm can be altered by somatic or serologic influences (hormones, colyones, infectious products, toxins, antibodies) to produce new heritable characters is lacking, but the possibility is more favorably considered now than formerly. If the conditions could be confirmed in which syphilis is present in the father alone and the spirochete is not carried over either to the mother or with the germ cell, developmental defects in the child might be attributed to syphilitic influences on the paternal germ plasm. Inheritance of the new character (defect) through succeeding generations is expected, however, as part of the evidence that this developmental change is due to germinal variation rather than to intra-uterine conditioning of the usual genetic control. There are records indicating that the father was syphilitic, the mother free from that infection, and the child syphilitic. Confirmation of these conditions is necessary to give them scientific value. If the child acquired a spirochete from the parent, syphilitic infection could ensue without relation to the possibility of germinal variation; if actual infection is not present in the child and only developmental defects are present, the unanswered question of the induction of new heritable characters by the influence of infection on the germ plasm may again be considered.

TREATMENT OF BRONCHIAL FISTULA

To the Editor:—What is the accepted treatment, if any, of an acutely developing bronchial fistula, as a complication of lung abscess or empyema? I mean first aid and following treatment. Please omit name.

M.D., Michigan.

ANSWER.—A bronchial fistula may develop from spontaneous perforation of the pulmonary abscess into the pleural cavity or from perforation of an empyema into a bronchus. The first step in treatment is wide open drainage of the empyema. If the sinus draining an abscess into the empyema cavity is inadequate, it should be enlarged. In the majority of cases the bronchial fistula will close spontaneously with the healing of the empyema. If it persists, a simple, safe and usually effective method of treatment is to pencil the mouth of the bronchus and surrounding area lightly with lunar caustic, repeating the application about once in two weeks. The silver nitrate destroys the lining epithelium of the mouth of the bronchus and granulation tissue and eventually scar tissue contraction gradually closes the fistula. Large fistulas that fail to close by this method may be obliterated by some type of plastic operation for which the silver nitrate treatment has prepared the field.

Fistulas that persist after primary drainage of a pulmonary abscess and multiple bronchial fistulas from any cause are treated on the same principle.

No attempt should be made to close any bronchial fistula as long as there is any considerable amount of purulent discharge. Metastatic abscesses, particularly brain abscess, may complicate such ill advised treatment.

TESTS FOR PYURIA

To the Editor:—Please let me know if there is a qualitative test for pyuria. If so, kindly give technic.

S. SKOLE, M.D., Ellwood City, Pa.

ANSWER.—There are several tests.

In Vitali's test the urine is acidified with acetic acid and filtered. The material is treated on the filter with a few drops of tincture of guaiac, when a deep blue color will appear in the presence of pus. If the material is not filtrable, as happens when the purulent material is extremely gelatinous, a portion of this slimy urine is placed in a test tube and a few drops of tincture of guaiac allowed to flow on the surface. If pus is present, a distinct blue line of contact will be observed.

In Donné's test a portion of the urinary sediment obtained by centrifugation is treated with a few drops of a concentrated sodium hydroxid solution. If pus is present an extremely viscid gelatinous mass will be obtained. If this mixture is heated it will dissolve, according to Müller, with the formation of *b*-nucleinic acid. If the pus cells are treated under the microscope with a few drops of Compound Solution of Iodine-U. S. P., they will take a mahogany-brown color owing to the presence of glycogen.

Enumeration of pus cells is not a part of the ordinary routine examination of urine. It is, however, sometimes advisable, as it permits of a decision regarding the presence or absence of a true albuminuria. If the latter exists, casts and renal epithelial cells will usually be present so that a diagnosis is often possible without a count of the cells.

The procedures mentioned here were taken from Webster's Diagnostic Methods.

As a rule, the presence of pus in the urine is determined by examining the sediment with the microscope and demonstrating pus cells in this way.

VACCINES FOR PREVENTION OF MENINGITIS

To the Editor:—Can you give me an idea of the general consensus of medical opinion as to the merit of bacterins in the prophylactic treatment of epidemic cerebrospinal meningitis? Please omit name.

M.D., Nebraska.

ANSWER.—The use of vaccines for the prevention of epidemic meningitis has not been extensive enough to establish any definite general medical opinion in regard to its value.

OPERATION FOR ATROPHY OF SPINAL MUSCLES

To the Editor:—I have a patient now 13 years of age, weight 103 pounds (46.7 Kg.), who was stricken with infantile paralysis in June, 1927. She was treated in a hospital with rest, casts part of the time, and massage. The muscles of the back are the most affected. She has made considerable improvement and has been going to school, wearing braces all the time. She walks well and feels well. The muscles on the paralyzed side in back show considerable atrophy, and there is some, though little, curvature of the spine. An operation, grafting bone on the vertebrae, to prevent further curvature by producing a rigid spine, has been advised. I wish to know whether this operation is advisable in these cases. Is this operation often done? What should one expect from it? Will it prevent further curvature? What is the condition of those who were operated on five or ten years ago? Any information that you can give me in regard to this operation, and the advantages or disadvantages, will be greatly appreciated. Who are the best surgeons doing this kind of work?

J. W. VAN BLARICUM, M.D., Minneola, Kan.

ANSWER.—Grafting bone in the posterior part of the spinal column, or fusing the spine by using the neighboring bone, and a combination of these two, are three operative procedures used with success in a majority of cases, when the operation is done by experienced, skilful orthopedic surgeons.

A girl of the age mentioned, with the paralysis standing only since 1927, will probably do better in braces or in skilfully made jackets until she is older. This should be decided after careful consideration of the particular case. It would not be surprising to see more muscular power return, following continued, well directed massage, in a patient whose paralysis is no older than in this child. Well designed and cautiously per-

formed operations, with unusual after-care and a considerable length of time, should be expected in the majority of cases to improve the stability of the back and to prevent further curvature. The results are, of course, better when the areas of instability are small.

Professors of this type of work in the various medical schools should be well qualified to operate when a study of the individual case indicates that operation is the best procedure.

EPHEDRINE HYDROCHLORIDE — PITMAN-MOORE COMPANY

To the Editor:—I am in receipt of a pamphlet on Ephedrine Hydrochloride of the Pitman-Moore Company. In this pamphlet the statement is made that "the hydrochloride was the first to be accepted by the Council on Pharmacy and Chemistry and the first to be produced in a pure state." On consulting the last edition of New and Nonofficial Remedies, and also the latest supplement, I do not find a Pitman-Moore product as an accepted brand. Will you kindly let me know whether or not it has been accepted by the Council?

C. B. E., PH.G., Indiana.

ANSWER.—None of the ephedrine products of Pitman-Moore Company have been accepted by the Council. The statement given in the advertising circular of the Pitman-Moore Company that the ephedrine hydrochloride was the first to be accepted by the Council on Pharmacy and Chemistry is in itself true; but the inference that the *Pitman-Moore brand* of ephedrine hydrochloride has been accepted by the Council on Pharmacy and Chemistry is unfair. As ephedrine is susceptible to unusual reactions, physicians will do well to confine their prescriptions to brands of ephedrine which are marketed in accordance with the standards devised by the A. M. A. Chemical Laboratory. The firms whose ephedrine salts have been accepted by the Council are: Abbott Laboratories; Eli Lilly & Company; Parke-Davis & Company; Prophylacto Manufacturing Company; E. R. Squibb & Sons, and Swan-Myers Company.

TREATMENT OF LONG-CONTINUED TUBERCULOSIS OF ANKLE

To the Editor:—The patient concerning whom I wish advice is 25 years of age, in excellent general health, with the diagnosis of tuberculosis of the ankle. The process, which is of at least six years' duration, began in the astragalocalcaneal joint, but the astragalotibial joint now seems to be the one chiefly involved and the astragalocalcaneal surfaces are united by dense bone with little of the original tuberculous process remaining. An abscess formed six years ago and a sinus persists. Under immobilization and heliotherapy, the swelling decreased and the sinus at present is practically healed. It seems as if heliotherapy and immobilization are not going to cure this case and I want to know what results one may expect from an arthrodesis of the ankle. What are the chances of securing a weight bearing extremity after what some call the "fusion" operation (cleaning out the diseased joint surfaces and inserting bone grafts)? What should be the mortality rate and is there any chance of causing a general dissemination of the tuberculous infection following an arthrodesis? Is amputation not often advisable in these cases? Please omit name and address.

M.D., Oklahoma.

ANSWER.—After this duration the tuberculous process in the ankle of an adult will probably not heal without operation. A triple arthrodesis or fusion of the ankle joint, probably with removal of the remains of the astragalus, is now indicated. The chances of securing a painless, weight bearing extremity are excellent. The mortality rate from the operation is extremely small, if any. The danger of a general tuberculous infection following is practically nil. Amputation is indicated in those cases in which there are persisting sinuses and evidence of generalized susceptibility to infection or tuberculosis. From the data furnished it appears that the patient would be an excellent risk in the hands of a first class operator.

PLATELETS IN CEREBROSPINAL FLUID

To the Editor:—What is the origin of platelets in the spinal fluid and what meaning does their presence have? Please omit name.

M.D., Iowa.

ANSWER.—There is no record in the literature of platelets ever having been found in either normal or pathologic cerebrospinal fluid, but it is possible to conceive of platelets in cerebrospinal fluid following a traumatic puncture with resulting blood, or following a cerebral hemorrhage. It is also possible to think that, in blood dyscrasias in which platelets are increased in the blood, the cerebrospinal fluid may contain some platelets if the fluid is mixed with even a small amount of blood. At the present state of our knowledge no significance should be attached to platelets in cerebrospinal fluid, other than that there is an admixture of blood in the fluid.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

COLORADO: Denver, April 2, 1929. Sec., Dr. Philip Work, Board of Medical Examiners, 324 Metropolitan Building, Denver, Colo.

DISTRICT OF COLUMBIA: Washington, April 9, 1929. Sec., Dr. Edgar P. Copeland, Suite 110—1801 Eye Street, Washington, D. C.

IDAHO: Boise, April 2, 1929. Hon. Fred. E. Lukens, Commissioner of Law Enforcement, Medical Examining Board, Boise, Idaho.

ILLINOIS: Chicago, April 9-11, 1929. Supt. of Registration, Mr. V. C. Michels, Dept. of Registration and Education, Springfield, Ill.

MINNESOTA—Basic Science: Minneapolis, April 2, 1929. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis.

MONTANA: Helena, April 2, 1929. Sec., Dr. S. A. Cooney, State Capitol Building, Helena, Mont.

NEVADA: Carson City, May 6-8, 1929. Sec., Dr. Edward E. Hamer, Board of Medical Examiners, Carson City, Nev.

NEW MEXICO: Santa Fe, April 8-9, 1929. Sec., Dr. W. T. Joyner, 20-21 First National Bank Building, Roswell, N. M.

West Virginia November Examination

Dr. W. T. Henshaw, secretary of the Public Health Council of West Virginia, reports the oral and written examination held at Morgantown, Nov. 27, 1928. The examination covered 10 subjects and included 100 questions. An average of 80 per cent was required to pass. Of the 12 candidates examined, 11 passed and 1 failed. Nine physicians were licensed through reciprocity with other states. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Univ. of Arkansas School of Medicine		(1927)	86.1, 93.5
George Washington Univ. Medical School		(1928)	83.0
Georgetown Univ. School of Medicine		(1928)	88.4
Indiana Univ. School of Medicine		(1927)	81.8
Univ. of Louisville School of Medicine		(1928)	86.0
Univ. of Maryland School of Medicine and the College of Phys. and Surg.		(1928)	84.4, 89.1
St. Louis Univ. School of Medicine		(1927)	81.6
Jefferson Medical College of Philadelphia		(1927)	90.3
Univ. of Tennessee College of Medicine		(1928)	88.6
	FAILED		
Univ. of Georgia Medical Department		(1925)	74.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington Univ. Medical School		(1926)	Dist. of Columbia; Maryland
Rush Medical College		(1916)	Illinois
Univ. of Louisville School of Medicine		(1924)	Kentucky
Univ. of Maryland School of Medicine and the College of Physicians and Surgeons		(1925)	Maryland
Univ. of Nebraska College of Medicine		(1923)	Maryland
Medical College of Ohio		(1894)	S. Carolina
Ohio State Univ. College of Medicine		(1917)	Ohio
Jefferson Medical College of Philadelphia		(1924)	Penna.

Florida November Examination

Dr. William M. Rowlett, secretary of the Florida State Board of Medical Examiners, reports the written examination held at Marianna, Nov. 12-13, 1928. The examination covered 10 subjects. An average of 75 per cent was required to pass. Of the 29 candidates examined, 28 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1928)	88
Howard Univ. School of Medicine		(1927)	83
Univ. of Georgia Med. Dept.		(1926) 83; (1927) 80; (1928)	82
Emory Univ. School of Medicine		(1893) 77; (1926)	85, 90
Atlanta College of Physicians and Surgeons		(1903)	87
Rush Medical College		(1913) 90; (1927)	91
Northwestern Univ. Medical School		(1882)	87
Tulane Univ. of Louisiana School of Medicine		(1928)	86, 86, 87
Univ. of Buffalo School of Medicine		(1902)	87
New York Homeopathic Med. Coll. and Flower Hosp.		(1896)	78
Miami Medical College, Cincinnati		(1899)	83
Cleveland College of Physicians and Surgeons		(1895)	85
Ohio State Univ. College of Medicine		(1925)	91
Jefferson Medical College of Philadelphia		(1926) 91; (1928)	91
Temple Univ. School of Medicine		(1928)	88
Vanderbilt Univ. School of Medicine		(1923) 87; (1927)	89
Memphis Hospital Medical College		(1913)	75
Chattanooga Medical College		(1907)	80
Univ. of Havana, Cuba		(1925)	79
	FAILED		
Long Island College Hospital		(1884)	71

Book Notices

BACTERIOLOGY: GENERAL, PATHOLOGICAL AND INTESTINAL. By Arthur Isaac Kendall, B.S., Ph.D., Dr.P.H., Professor of Research Bacteriology in the Northwestern University Medical School. Third edition. Cloth. Price, $7 net. Pp. 733, with 111 illustrations. Philadelphia: Lea & Febiger, 1928.

This revision of Kendall's well established textbook has been undertaken to provide for new discoveries in bacteriology and related subjects. The book therefore includes a section on the Kahn test supplied by Dr. Kahn and new material on scarlet fever, the chemistry of bacteria, the filtrable viruses and on the natural history of bacteria in general. The book is well arranged, the statements are direct, and literary references include material as late as 1927.

MEDICINA UMORISTICA. Rinascenza medica. Direttore Prof. Carlo Martelli. Paper. Price, 25 lire. Pp. 128, with illustrations. Naples, 1928.

The Italian publisher has here made available in Italian practically the same material that was to be found in several of the well known German works of medical humor, such as "Mit Hörohr und Spritze." A few items of Italian humor are added, but the vast majority of cartoons and jokes are German in origin.

INTRODUCTION TO THE TECHNIC OF CHILD ANALYSIS. By Anna Freud. Nervous and Mental Disease Monograph Series No. 48. Boards. Price, $1.50. Pp. 59. New York: Nervous and Mental Disease Publishing Company, 1928.

This monograph includes four lectures which give the author's experience in attempting to determine by the psychoanalytic method the causes of disturbances of child behavior, such as stealing, maliciousness and masturbation. In her adaptation of psychoanalysis to the study of the child she uses apparently the psychoanalytic nomenclature and somewhat fundamental conceptions, but at the same time acts as a well trained governess or nurse. Apparently the time of study is greatly prolonged since there is evidence in one case that for the first time an inquiry relative to persistent masturbation reached the child after five months of study. The book will, of course, interest all who are interested in psychoanalysis or in the psychologic study of the difficult child.

NUTRITION. By Walter H. Eddy, Ph.D., Professor of Physiological Chemistry, Teachers College, Columbia University. Cloth. Price, $2.50. Pp. 237. Baltimore: Williams & Wilkins Company, 1928.

In this volume the reader will find abbreviated studies of diet, including information concerning food in general, proteins, carbohydrates, fats, mineral salts and digestion. The second half of the book is concerned with the vitamins. The data are as up to date as the book itself, but much new material has become available since the book was issued; thus, the volume is weak so far as concerns our present knowledge of vitamin B and its components, although the author recognizes the fact that much more study is to be anticipated. Of especial importance are the sections on the way in which cooking affects vitamins, a field in which the author has done much fundamental research.

AUTOBIOGRAPHY OF A SURGEON. By John Morris Dodd, M.D., F.A.C.S., D.Sc. Cloth. Price, $5. Pp. 323, with illustrations. New York: Walter Neale, 1928.

The author has lived for many years in Ashland, Wis., where he has kept in contact with the life of the day through the sources now available to the rural practitioner, and where he has at the same time conducted a medical practice of more than usual interest. His early days and his education were typical of those of most Americans of the middle of the nineteenth century. He received his medical education at Columbus, Ohio, at the Starling Medical College. He gives an accurate picture of medical education as it was developed in Ohio. The second part of the book includes papers published from time to time on such subjects as bacteriology, surgery and medical education, all of them of interest, since they represent direct statements of work by a man in the field. It will be a source of satisfaction to the author, and certainly to his family and friends in the future, to have this well stated record of his experiences.

HANDBOOK OF MICROSCOPICAL TECHNIQUE. For Workers in Both Animal and Plant Tissues. Edited by C. E. McClung, Ph.D., Professor of Zoology and Director, Zoological Laboratory, University of Pennsylvania. Leather. Price, $8 net. Pp. 495, with 43 illustrations. New York: Paul B. Hoeber, Inc., 1929.

As a source of information, this book is worthy of the attention of every one interested in the technic of preparation, fixation, staining and examination of plant and animal tissues. Edited by Dr. McClung, it is contributed to by him, by several of his associates in the University of Pennsylvania, and by other well known scientists in a number of the leading universities in the United States and Canada. Each section of the book has been prepared by one well versed in the knowledge of his particular field, and each topic is considered in a fairly concise but sufficiently thorough manner. Methods are clearly stated as they are used in botany, zoology and histology. Much space is devoted to stains and to fixatives. They are considered in connection with each tissue to which they apply and in sections devoted to them alone. The book is up to date and is to be recommended as a handbook which students of technic will find valuable.

FROM MAGIC TO SCIENCE. Essays on the Scientific Twilight. By Charles Singer. Cloth. Price, $7.50. Pp. 253, with illustrations. New York: Boni & Liveright, 1928.

This beautiful volume includes a collection of essays by Dr. Charles Singer, one of the most noted of medical historians. One of the essays is written by Mrs. Singer, who is herself distinguished in the field covered by this book. Many of the essays here included have had previous publication in whole or in part in other ways, but not heretofore have they been so handsomely presented as in the present book. The essays cover such subjects as science under the Roman Empire, the dawn of science, early British medicine, the visions of Hildegarde, and the school of Salerno. In the last mentioned essay Mrs. Singer considers lightly the four legends concerned with the origin of Salerno and with Dame Trotula. She aids thus in removing from medical history some of the fables which have given it romantic interest, if not veracity.

A TEXTBOOK OF MEDICINE. By Various Authors. Edited by J. J. Conybeare, M.C., M.D., F.R.C.P., Assistant Physician to Guy's Hospital. Cloth. Price, $8. Pp. 976, with 24 illustrations. New York: William Wood & Company, 1929.

This book is divided into sections, each section being devoted to the diseases of a particular system or to the diseases and disorders due to parasites, physical agents or intoxications. There are special sections devoted to the infectious diseases, the diseases of infants and the common diseases of the skin. There is a short special section appended on examination for life assurance. The book is akin to the compend yet is comprehensive. Illustrations and plates are used sparingly and only for some special purpose. Little attempt has been made to describe the technic of laboratory tests, and detailed accounts of physical signs have been omitted because the editor feels that the student can best learn these signs by direct observation of patients with disease. Besides the editor, the contributors include nine other well known English physicians, one a Canadian.

LECTURES ON CONDITIONED REFLEXES. Twenty-Five Years of Objective Study of the Higher Nervous Activity (Behaviour) of Animals. By Ivan Petrovitch Pavlov, M.D., Director of the Physiological Laboratories, Institute of Experimental Medicine and Academy of Sciences. Translated from the Russian by W. Horsley Gantt, M.D., B.Sc., Co-Worker in Professor Pavlov's Laboratory, Institute of Experimental Medicine, 1925-1928. With the collaboration of G. Volborth, M.D., and an introduction by Walter B. Cannon, George Higginson Professor of Physiology, Harvard University. Cloth. Price, $6.50. Pp. 414, with 9 illustrations. New York: International Publishers, 1928.

About a year ago (Jan. 28, 1928), Pavlov's "Conditioned Reflexes," translated by Anrep, was reviewed in these pages. The present volume covers the same subject. It comprises the author's lectures read before various learned societies of Russia and other foreign countries as well as articles as they appeared in various journals from 1903 to 1928. The emphasis is naturally placed on the contributions of his collaborators in the development of this new field of experimental physiology. Except for one addition, the bibliography at the end of this volume is identical in the two books. A delightful illustrated biography of the author prefaces the present volume. The older

physician, unfamiliar with the term, should know that conditioned reflexes are acquired reflexes, distinct from the unconditioned reflexes, which are inborn. Conditioned reflexes are therefore distinctly related to behaviorism, social practices, and the nature of cerebral activity in health and disease (neuroses and psychoses). Since the book consists of a compilation of articles, reports, lectures and speeches given in Russia and abroad during twenty-five years, repetitions are inevitable. Any one wishing to acquaint himself with this field of physiologic endeavor, whether biologist, psychologist, teacher, neurologist or psychiatrist, ought to purchase the book reviewed a year ago. In the Anrep translation the presentation is more systematic, since the book is a stenographic account of lectures on the subject given at the Military Medical Academy of Petrograd. No explanation is given why the same subject matter is published in two distinct books; perhaps the present volume is intended for experimenters in the field who are unable to read the detailed account of the original experiments written in Russian.

SHORT ESSAYS ON MEDICAL TOPICS. By C. O. Hawthorne, M.D. Cloth. Price, 4s. 6d. net. Pp. 246. London: John Bale, Sons & Danielsson, Ltd., 1928.

The author has collected under one cover numerous editorial comments on subjects in the field of medicine, varying from Christian science and popular lectures to percussion, euthanasia and the prevention of heart disease. He writes with a good deal of common sense and with a sympathy for the public as well as for the profession. Several of the editorials have appeared in the *Medical Press and Circular* and are typical of the editorial content of that publication.

COLLOID CHEMISTRY, THEORETICAL AND APPLIED. By Selected International Contributors. Collected and edited by Jerome Alexander. Volume II: Biology and Medicine. Cloth. Price, $15.50. Pp. 1029, with illustrations. New York: Chemical Catalog Company, Inc., 1928.

The future historian of medicine will find awaiting him a broader field to survey than chroniclers of the progress of medicine before him, for medicine has absorbed as its own the results of the many sciences that surround it. Not the least of these is chemistry with its many ramifications. Ever since Thomas Graham enunciated the idea of the colloidal state seven decades ago there has been an appreciation that in some way or other the phenomenon of life, whatever it may be shown to be, is intimately connected with the colloidal state; that is, of a dimension larger than molecular. Scientists and practitioners of medicine will note with interest, therefore, the appearance of this volume, a companion to volume I, which brought together between two covers the status of colloid chemistry as viewed by eminent investigators in the theoretical field. The present volume aims to depict the application and results of colloid chemistry to biologic and medical (which might properly be included in the term biologic) problems. The editor has had the good fortune to associate with him investigators and scholars who are known for their fruitful contributions to the subjects on which they write. The wide range touched on by the contributors may be judged from the distribution of the papers. Following the first paper, on some physicochemical aspects of life, mutation and evolution, are two on artefacts, several on physicochemical matters, four on proteins, five on inorganic ferments and enzymes, six on protoplasm and cell structure, four on micro-organisms, one on fertilization, two on plants, and more than twenty on medical topics of great diversity. The advantage of including within a single book the facts and opinions of distinguished workers in the various fields into which colloidal chemistry enters is readily apparent. The tendency for specialization has been so great in the last years that there are those who decry it, in that it leads to narrowness and lack of vision and coordination; but the "true specialist should also be a generalist and should couple a hawk-like perception of essential details with the breadth of vision of the old school natural philosopher." The great body of knowledge is expanding so rapidly that, indeed, it is difficult for an individual absorbed in some special fields to become acquainted with the aims and accomplishments in other fields. For this reason the volume should find a place on the shelf of the thinking student and practitioner; its frequent consultation and study will more than amply repay the time spent on it. The book is printed on a good grade of paper and neatly bound. Unfortunately, the price will tend to limit the distribution of the book.

THE TREATMENT OF DIABETES MELLITUS. By Elliott P. Joslin, M.D., M.A., Clinical Professor of Medicine, Harvard Medical School. Fourth edition. Cloth. Price, $9 net. Pp. 998, with 38 illustrations. Philadelphia: Lea & Febiger, 1928.

This edition not only is "enlarged, revised and rewritten" but also fortunately contains more of Joslin's personality and his individuality than the previous editions. Books of this type are only too rare, and this one deserves a place beside Osler's textbook on medicine. Throughout the book is found a breadth of knowledge that is exceeded only by the inherent wisdom of the author. His frankness and charm are found on almost every page, which with the simplicity of the exposition give the book an absorbing interest. Diabetic patients owe more to Joslin than to any one else except Banting and Best, the discoverers of insulin. (It is gratifying to see Best's name linked properly to that of Banting.) Joslin was a leader in the treatment of diabetes before and during the period of "undernutrition" treatment, just as he has been since insulin became available. His discussion of the theories of the cause of diabetes, of the physiology and pathology of diabetes, and of metabolism in health and in diabetes are comprehensive and with the addition of a full bibliography leave nothing to be desired. It is of interest to note that he does not enter into the controversy as to whether or not fat of the body is easily changed into carbohydrate. He indicates, however, that he believes this occurs to a certain extent. He is definite in his statement that a high fat diet is a danger to patients with diabetes, causing hypertension and atherosclerosis. This stand has been criticized by some on the ground that overweight causes these changes and not the high fat diet itself. Joslin has been foremost in pointing out the danger of overweight. Whether he is correct or not in his attitude toward a high fat diet, he has focused attention on the subject and stimulated investigation. The practical parts of the book have the same excellence as the rest. Altogether, it is the most worth while, stimulating and practical contribution yet published in the field of diabetes.

DIE KLINISCHE BEDEUTUNG DER QUALITATIVEN VERÄNDERUNGEN DER LEUKOZYTEN. Von Priv.-Doz. Dr. Walther Gloor, Oberarzt der medizinischen Universitätsklinik, Zürich. Mit einem Vorwort von Prof. Dr. O. Naegeli. Paper. Price, 12 marks. Pp. 89, with illustrations. Leipzig: Georg Thieme, 1929.

This is a report of a study, under the inspiration of Naegeli, of the changes in the polymorphonuclear leukocytes that occur in various infectious diseases. The author believes that Arneth's classification, because of its complexity, is not applicable to a study of the blood leukocytes. In this work he used the simpler classification of Schilling. Gloor shows that in various infectious diseases two main types of qualitative changes occur in the leukocytes. One of these is the appearance in the peripheral blood of young forms; that is, a shifting to the left according to Arneth's scheme. Gloor believes this a sign of the regenerative activity of the bone marrow. The other change in the leukocytes, and the one to which Gloor attributes more importance, is the presence of so-called pathologic or toxic changes, which he considers of a more degenerative nature. Included in them are basophilia of the protoplasm, toxic, or abnormal, staining of the granules, and the appearance of vacuoles. The shifting to the left of the nuclear index occurs in the bone marrow while the toxic changes are believed to occur in the peripheral blood. From this point of view he studied the blood picture in certain infectious diseases. He also conducted a few experiments on human blood as well as on experimental infections in rabbits. The most severe changes are found in the streptococcus infections (including pneumococcus pneumonia). The fewest toxic changes are found in endocarditis lenta. In pneumonia the toxic changes are most marked at the crisis or before death. Accordingly, the changes in the leukocytes are not of prognostic aid. Vacuolization of the leukocytes is found when there is a large, local area of inflammation and seems to be particularly prominent when there is injury to the liver. The vacuoles occur in otherwise well preserved cells and are probably due to the phagocytosis of fatty material. The monograph is stimulating to the extent that it calls attention to the toxic changes in the leukocytes, changes usually neglected in such studies. Gloor's conclusion that the qualitative changes

in the leukocytes are of diagnostic rather than prognostic aid is a refreshing contrast to many recent studies on the blood leukocytes. His explanation of the causes of the toxic or pathologic changes in the leukocytes, however, certainly cannot withstand a critical examination.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

TEXTBOOK OF CLINICAL NEUROLOGY FOR STUDENTS AND PRACTITIONERS. By M. Neustaedter, M.D., Ph.D., Visiting Neurologist, Central Neurological Hospital, Welfare Island. With an introduction by Edward D. Fisher, M.D. Cloth. Price, $6 net. Pp. 602, with 228 illustrations. Philadelphia: F. A. Davis Company, 1929.

Good, workable handbook with emphasis on methods of examination.

SURFACE ANATOMY. By Arthur Robinson, M.D., F.R.C.S., Professor of Anatomy in the University of Edinburgh, and E. B. Jamieson, M.D., Lecturer of Anatomy in the University of Edinburgh. Cloth. Price, $6. Pp. 175, with 38 illustrations. New York: William Wood & Company, 1928.

Brief guide to the topography of the human being.

MODERN PROBLEMS IN NEUROLOGY. By S. A. Kinnier Wilson, M.D., B.Sc., F.R.C.P., Physician for Out-Patients, National Hospital, Queen Square. Cloth. Price, $6. Pp. 364, with 56 illustrations. New York: William Wood & Company, 1929.

Collected essays in a highly technical field.

TAKING THE DOCTOR'S PULSE AND ANOTHER ESSAY. By J. F. Montague, M.D., F.A.C.S., of the University and Bellevue Hospital Medical College. Cloth. Price, $1. Pp. 103. Philadelphia: J. B. Lippincott Company, 1928.

Essays on doctor's problems and on medical movies.

ERYTHEMA NODOSUM. By J. Odery Symes, M.D., Consulting Physician to the Bristol General Hospital. Cloth. Price, $2. Pp. 72, with 8 illustrations. New York: William Wood & Company, 1928.

Monograph of current information leading to suggestion of antistreptococcic serum in treatment.

THE OUTLINE OF BUNK INCLUDING THE ADMIRATIONS OF A DEBUNKER. By E. Haldeman-Julius. Cloth. Price, $4. Pp. 503. Boston: Stratford Company, 1929.

Mr. Haldeman-Julius explains his likes and dislikes as he looks beneath the surface.

THE STORY OF HUMAN PROGRESS. By Leon C. Marshall, Professor of Economics, the University of Chicago. Second edition. Cloth. Price, $3.50. Pp. 445, with illustrations. New York: Macmillan Company, 1928.

Survey of man's progress from cave to civilization.

A DOCTOR'S LETTERS TO EXPECTANT PARENTS. By Frank Howard Richardson, M.D., F.A.C.P. Cloth. Price, $1.75. Pp. 118, with illustrations. New York: W. W. Norton & Company, Inc., 1929.

Popular guide for prenatal care.

SPIES. By Joseph Gollomb. Cloth. Price, $2.50. Pp. 389. New York: Macmillan Company, 1928.

A stirring record of the activities of the intelligence departments of various armies.

STUDIES IN PHYSICAL DEVELOPMENT AND POSTURE. I: The Effect of Exercise on the Physical Condition and Development of Adolescent Boys. II: Bodily Growth with Age. III: Physical Fitness as Reflected in Tests of Muscular Strength. By Louis Schwartz, Surgeon, Rollo H. Britten, Associate Statistician, Lewis R. Thompson, Surgeon, United States Public Health Service. Prepared by Direction of the Surgeon General. Public Health Bulletin, No. 179. Paper. Price, 30 cents. Pp. 124. Washington, D. C.: Supt. of Doc., Government Printing Office, 1928.

HANDBUCH DER ALLGEMEINEN UND SPEZIELLEN ARZNEIVERORDNUNGSLEHRE FÜR ÄRZTE MIT BESONDERER BERÜCKSICHTIGUNG DER DEUTSCHEN ARZNEIMITTEL-GESETZGEBUNG ZUGLEICH ALS PHARMACOPOEA UNIVERSALIS. Bearbeitet von Dr. G. Klemperer, Geh. Medizinalrat, Professor Direktor der IV. Mediz. Universitätsklinik im Stadt. Krankenhaus Moabit, und Dr. E. Rost, a. o. Professor an der Universität Mitglied des Reichsgesundheitsamts, Berlin. Fifteenth edition. Paper. Price, 64 marks. Pp. 944. Berlin: Julius Springer, 1929.

REFRACTIVE ERRORS IN THE EYES OF CHILDREN AS DETERMINED BY RETINOSCOPIC EXAMINATION WITH A CYCLOPLEGIC. Results of Eye Examinations of 1,860 White School Children in Washington, D. C. By Grover A. Kempf, Surgeon, Selwyn D. Collins, Associate Statistician, Bernard L. Jarman, A. A. Surgeon, United States Public Health Service. Prepared by Direction of the Surgeon General. Public Health Bulletin, No. 182. Paper. Price, 15 cents. Pp. 56. Washington, D. C.: Supt. of Doc., Government Printing Office, 1928.

THE HARVEY LECTURES DELIVERED UNDER THE AUSPICES OF THE HARVEY SOCIETY OF NEW YORK, 1927-1928. Under the Patronage of the New York Academy of Medicine. By Dr. Edward Francis, Dr. Frank C. Mann, Dr. Carl F. Cori, Dr. Wallace O. Fenn, Dr. G. R. Minot, Dr. E. S. London, Dr. Thomas Addis, and Dr. Alfred E. Cohn. Series XXIII. Cloth. Price, $4. Pp. 280, with illustrations. Baltimore: Williams & Wilkins Company, 1929.

THE CONTROL AND TREATMENT OF CHOLERA IN THE FEDERATED MALAY STATES. A Compilation from Reports on Cholera Outbreaks at the Quarantine Camp, Port Swettenham (1925, 1926), and in the State of Perak (1927). By Drs. E. H. Black, F. V. Jacques, W. Young, M. J. Graham, and others. Bulletins from the Institute for Medical Research, Federated Malay States, No. 1 of 1928. Paper. Pp. 12. Kuala Lumpur, 1928.

LE CARDIOGRAMME DE DÉCUBITUS LATÉRAL GAUCHE EN CLINIQUE. Analyse. Interprétation rapports avec la valeur fonctionnelle du cœur. Par V. Pachon, professeur de physiologie à la Faculté de Médecine de Bordeaux, et Roger Fabre, sous-directeur du laboratoire de physiologie clinique à la Faculté de Médecine de Bordeaux. Paper. Price, 20 francs. Pp. 86, with 94 illustrations. Paris: Gaston Doin & Cie, 1929.

THE RAT: Arguments for Its Elimination and Methods for Its Destruction. Prepared by Surgeon R. H. Creel, May, 1919, and published as Public Health Bulletin, No. 103. Revised by Surgeon C. V. Akin, March, 1928. Prepared by Direction of the Surgeon General. Public Health Bulletin No. 180. Paper. Price, 5 cents. Pp. 10. Washington, D. C.: Supt. of Doc., Government Printing Office, 1928.

L'ANESTHÉSIE LOCO-RÉGIONALE EN OTO-RHINO-LARYNGOLOGIE ET EN CHIRURGIE CERVICO-FACIALE. Par Georges Portmann, professeur de clinique oto-rhino-laryngologique a l'Université de Bordeaux, et Paul Leduc, anesthésiste a la clinique oto-rhino-laryngologique de l'Univeçsité de Bordeaux. Paper. Price, 50 francs. Pp. 321, with 84 illustrations. Paris: Gaston Doin & Cie, 1928.

THE UTILIZATION OF SULPHUR BY ANIMALS, WITH ESPECIAL REFERENCE TO WOOL PRODUCTION. By Hedley R. Marston, Division of Animal Nutrition, and Professor T. Brailsford Robertson, Ph.D., D.Sc., Chief of the Division of Animal Nutrition. Commonwealth of Australia, Council for Scientific and Industrial Research, Bulletin, No. 39. Paper. Pp. 51. Melbourne, 1928.

THE CHEMICAL COMPOSITION OF WOOL WITH ESPECIAL REFERENCE TO THE PROTEIN OF WOOL-FIBRE (KERATIN). By Hedley R. Marston, Division of Animal Nutrition. Commonwealth of Australia, Council for Scientific and Industrial Research, Bulletin, No. 38. Paper. Pp. 36, with illustrations. Melbourne, 1928.

FEHLDIAGNOSEN UND FEHLBEHANDLUNG SOWIE DEREN VERHÜTUNG AUF DEM GEBIETE DER VERDAUUNGSKRANKHEITEN. Von Geh.-Rat. Prof. Dr. L. Kuttner, Direktor des Rudolf-Virchow-Krankenhauses in Berlin. Paper. Price, 3 marks. Pp. 59, with 10 illustrations. Leipzig: Georg Thieme, 1929.

LA RÉSERVE ALCALINE. Par L. Ambard, professeur a la Faculté de Médecine de Strasbourg, et F. Schmid, chef de laboratoire à la Faculté de Médecine de Strasbourg. Paper. Price, 18 francs. Pp. 155, with 3 illustrations. Paris: Gaston Doin & Cie, 1928.

CAUSES ET TRAITEMENTS DES RHUMATISMES CHRONIQUES. Par R. J. Weissenbach, médecin des Hôpitaux de Paris, et F. Françon, médecin consultant aux Eaux d'Aix-les-Bains. Paper. Price, 32 francs. Pp. 342. Paris: Gaston Doin & Cie, 1928.

PUNKTZIA SADNEI TSISTERNY MOSGA. H. I. Garkavi. Trudy severo-kavkasskoy assotsiatsii nauchno-issledovateskikh institutov, No. 51. Vypusk IX. Paper. Pp. 160, with 24 illustrations. Rostov on Don, 1928.

REPORT OF THE IMPERIAL INSTITUTE OF VETERINARY RESEARCH MUKTESAR FOR THE YEAR ENDING 31ST MARCH, 1928. Paper. Price, Re. 1-6 or 2s. 3d. Pp. 28, with illustrations. Calcutta, 1928.

THE TREATMENT OF MALARIA WITH ASEPLENE. By Richard Green, M.B., B.S. Bulletins from the Institute for Medical Research, No. 3 of 1928. Paper. Pp. 4, with illustrations. Kuala Lumpur, 1928.

HEILBRIGDISSKÝRSLUR (PUBLIC HEALTH IN ICELAND) 1927. Samdar eftir skýrslum hjeradslækna ad tilhlutun heilbrigdisstjórnarinnar. With an English Summary. Paper. Pp. 92. Reykjavik, 1928.

L'HYGIÈNE DE L'ATTENTION PAR LA MÉTHODE D'AUTORÉGULATION CONSCIENTE. Par Dr. R. Ruiz Arnau. Paper. Price, 25 francs. Pp. 284, with 19 illustrations. Paris: Gaston Doin & Cie, 1928.

APPRAISAL FORM FOR CITY HEALTH WORK. Committee on Administrative Practice. Third edition. Paper. Price, 75 cents. Pp. 108. New York: American Public Health Association, 1928.

ANNUAL REPORTS FOR THE YEAR 1928 OF THE COMMITTEES OF THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK. Paper. Pp. 56. New York, 1928.

Medicolegal

Employer's Liability for Medical Service to Employee

(O'Ferrall v. Nashville Bridge Co. (La.), 116 So. 399)

This was a suit for fees for treating seven injured employees of the defendant. The district court gave judgment for the plaintiff for $6,500, and the defendant appealed to the supreme court of Louisiana. On being advised of the accident that made such treatment necessary, the defendant authorized its local representative to see that the injured men were well taken care of. This representative thereupon employed the plaintiff, who rendered treatment for seven months. The defendant was kept advised by its representative of the scope and character of the treatment rendered. Three weeks after the accident, the plaintiff was told for the first time that an insurer of the defendant was considered by the defendant to be the plaintiff's employer and that it would be contended that the plaintiff's compensation was limited to the amount allowed by the workmen's compensation act. The plaintiff declined to recognize the insurer as his employer or the applicability of the workmen's compensation act. The defendant, in denying liability, contended that there was no contract between it and the plaintiff; that if there was an agreement between the plaintiff and a representative of the defendant, the representative had no authority to make it; that if there was a contract, it was a contract to pay the debt of third persons, the injured employees, and, being only a verbal contract, was not enforceable because of a statute declaring that parol evidence shall not be received to prove any promise to pay the debt of a third person; and that the fees for the treatment of the employees were limited to $250 by the workmen's compensation act. The defendant further contended that, if the court should determine that the defendant was liable for an amount in excess of $250, the fees charged by the plaintiff were excessive.

The supreme court held that the judgment of the district court was correct. There was an authorized, verbal contract between the plaintiff and the defendant's representative, the court said, the nature of which was understood and agreed to by the defendant, who received the benefits of it. The statute relied on by the defendant, relating to the admission of parol evidence, was not applicable because the verbal contract sued on was not a promise to pay the debt of a third person. The obligation was the obligation of the defendant as employer of the men responsible, not only morally, but legally, for the injuries suffered. An obligation incurred under such circumstances by one who has an interest to protect is not the obligation of a third person. The workmen's compensation act, the court said, had nothing to do with the case. That act fixes or limits the liability of an employer to an injured employee. It does not forbid the employer to go beyond the statutory limit in his dealings with those who render medical service to an injured employee. As to the reasonableness of the fees, the plaintiff and two other reputable surgeons testified that the fees were just and reasonable. There was no evidence to the contrary. The court could see no reason to doubt that they were in line with the usual and customary fees charged by reputable surgeons for services similar to those rendered in this case. The judgment of the district court was therefore affirmed.

Liability of Hospital for Suicide of Patient

(Hignite v. Louisville Neuropathic Sanitorium et al. (Ky.) 4 S. W. (2d), 407)

The deceased, suffering from a nervous breakdown, was taken to the defendant sanatorium for treatment. Twelve days after admission, he committed suicide. The plaintiff sued the sanatorium and its chief medical officer, claiming that the death of her husband was due to their negligence. The circuit court gave judgment for the defendants, and the plaintiff appealed to the court of appeals of Kentucky. In the trial court the jury was instructed that if they believed that the defendants knew or by the exercise of ordinary care could have known that the deceased *at the time he was received as a patient* was suffering from a mental malady from the effects of which it might reasonably be anticipated that he would commit suicide, it was the duty of the defendants to exercise such reasonable supervision over the patient as would serve to prevent such suicide, and that if the defendants failed in that duty, and if that failure was the sole cause of the patient's death, they must find for the plaintiff; and that if the jury believed that at the time the deceased was received as a patient, the chief medical officer asked the son of the deceased if a special nurse was desired and a negative answer was given, then they must find for the defendants. The court of appeals held that both instructions were erroneous. The first was erroneous because it authorized a verdict for the plaintiff only if the defendants failed in their duty because of what they knew or should have known *at the time the patient entered the sanatorium.* Knowledge acquired *after* he entered imposed on the defendants a duty of using reasonable care to prevent the suicide. The second instruction was erroneous because it directed the jury, without reference to any other facts in the case, to find for the defendants if the deceased's son said that no special nurse was desired. Admitting that the son made that statement, the court continued, that fact would not relieve the defendants of liability in event they subsequently learned or should have learned that the deceased's condition was such that he might commit suicide. The court of appeals held that the error committed in giving the instructions complained of was prejudicial to the plaintiff and the judgment of the circuit court was reversed.

Insanity and Testamentary Capacity Differentiated

(Kennedy v. Walcutt (Ohio), 161 N. E. 336)

This action was brought by the appellee, Walcutt, to contest the will of Claudius M. Kennedy. The jury rendered a verdict against the validity of the will. This verdict was affirmed by the court of appeals, and to reverse its judgment an appeal was taken to the supreme court of Ohio. The record disclosed that the testator was an inmate of a sanatorium and had been under treatment for mental disability on six occasions. He had delusions; was of a depressive, suicidal type; suffered from arteriosclerosis, and had a pronounced case of senile dementia; killed his wife, with no provocation; was an inmate of the Lima State Hospital for the criminal insane for about four years; and was under guardianship from Aug. 6, 1920, to the time of his death. His will was executed, May 26, 1920. The appellant conceded that the evidence showed that the testator was "medically insane" from the time of his commitment to the Lima State Hospital, July, 1920, with periods of improvement, until his death, and the record showed that the guardianship to which he was subjected, Aug. 6, 1920, was never removed. The case turned on the question whether the testator, described above, on May 26, 1920, had sufficient testamentary capacity, within the meaning of the law, to execute a valid will.

It is true, said the supreme court, that a man may be "medically insane" and yet capable of making a valid will. The law presumes every man to be sane until that presumption is overcome by sufficient evidence. After it has been so overcome and an adjudication to that effect entered in a court of competent jurisdication, the presumption of insanity is established. This presumption continues until it has been removed by evidence which overcomes such presumption. But the presumption of insanity continuing after such adjudication is one thing, and the ability of the testator to execute a valid will is quite another thing. While the statutes of Ohio provide that, in order to make a valid will, the testator must be of sound mind and not under any restraint, yet the testator may be under guardianship and may have been adjudged to be an insane person, and yet have testamentary capacity. To make a valid will it is sufficient for the testator to have mind enough to know and understand what property he has, who would naturally inherit it in the absence of a will, and whom he selects to give it to by the will. He should be able to comprehend the extent of the property of which he is disposing, and other property, if any, which he owns, and the persons to whom he gives and those, if any, from whom he withholds; and he should be able to understand his relations with reference to the natural objects of his bounty. It is not the law in Ohio that an adjudication of insanity, or the appointment of a guardian, or both, makes a prima facie case of testamentary incapacity and places the burden on the proponents of a will to show the sanity of the testator so far as testamentary capacity is concerned. Under

the statutes and decisions of Ohio, the burden of showing lack of testamentary capacity is on the contestant of a will, and such burden never shifts. The fact that the testator had been adjudged insane and the presumption of the continuance of insanity were circumstances that the jury had a right to consider as bearing on the true issue submitted, namely, whether or not the testator had mental capacity sufficient to execute a valid will within the meaning of the law. Evidence of the appointment of a guardian or an adjudication of insanity was admissible under proper instructions as bearing on that issue. The judgment of the court below was affirmed.

Evidence of Good Character of Physician in Malpractice Suit

(Lester v. Gay (Ala.), 117 So. 211)

In this action for assault and battery, the plaintiff, a woman patient, claimed that the defendant, a physician, in the course of a pretended treatment lasciviously manipulated her person and made an improper proposal. The defendant admitted that he made an "intimate" examination of the plaintiff, but he asserted that he had proceeded in strict accordance with professional ethics and denied any wrongdoing. The circuit court gave judgment for the defendant. The plaintiff appealed to the supreme court of Alabama, assigning as error, among other things, the admission in evidence by the circuit court of evidence showing the defendant's general good character and his high reputation as a physician. The supreme court held that this admission was error, for which the judgment of the circuit court must be reversed. In civil actions, evidence of the good character of the defendant is inadmissible until that character has been first questioned by evidence introduced by the plaintiff, which was not done in this case. Even though the case did involve a charge of wilful malpractice, the court said, that fact did not permit the defendant to excuse his actions by proof of high reputation or call for the admission of evidence of character as relevant to the issue of guilt involved. The circuit court properly permitted the defendant to introduce expert testimony showing that the plaintiff was a neurasthenic and hysterical person and that it was possible, or even probable, that a person when passing into or out of a faint under conditions described by her would have hallucinations and believe that such things as the plaintiff had described had happened, though in fact they had not. This was the proper subject for expert medical opinion, the supreme court said. No error was committed in permitting medical witnesses to testify that prescriptions given by the defendant to the plaintiff were proper in the treatment of nervous conditions and that the treatment to which the defendant testified—the use of tampons—was correct under the circumstances.

Hernia and Workmen's Compensation Act

(Woodward Iron Co. v. Vines (Ala.), 116 So. 514)

The employee, Vines, instituted proceedings under the workmen's compensation act to recover compensation for a hernia alleged to have been caused by an accident sustained in the course of employment. The circuit court awarded compensation and the employer applied to the supreme court of Alabama for a writ of certiorari. The employee testified that, while pushing one of his employer's coal cars, he slipped and fell on the car; that he discovered a knot in his groin before walking fifty yards; that he went home and on the following day sent for a physician, who referred the case to the chief surgeon for the employer; that the chief surgeon advised an operation but said that the employer would not pay compensation for hernia in addition to providing the operation, and that he refused to submit to the operation without compensation. The chief surgeon testified that the employee had enlarged rings in both groins, and that he had had them all his life; that the employee had a right inguinal hernia, but that it was not in his opinion due to the accident, and that he had operated on the employee prior to the accident for appendicitis and that the employee at that time did not have a hernia. The employment card of the employee showed that he had no deformity as of the date of employment. The supreme court said that under the workmen's compensation act the evidence was sufficient to support the finding of the circuit court if the proof was such as reasonably to satisfy the court that the employee suffered an injury in the course of his employment; that the injury resulted in hernia; that the hernia appeared suddenly, following the accident, and was accompanied by pain, and that the hernia did not exist prior to the accident. The circuit court had found as a fact, the supreme court said, that the essentials to the recovery of compensation had been proved as required, and that that finding was conclusive. The act provided that, while the employee refused to undergo an operation, no compensation would be allowed unless the employee had a chronic disease or was otherwise in such physical condition that the court considered an operation unsafe. The employer contended that this provision precluded the employee from recovering compensation. The court said, however, that for such a refusal to constitute a defense it must be shown that the employer offered the operation, accompanied by an averment that he was ready, willing and able to furnish the required medical and surgical skill. There was no evidence in this case to show that the employer had complied with the terms of the statute as to such offer. The writ of certiorari was therefore denied and the judgment of the circuit court affirmed.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Mobile, April 16-19. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.
American Association for the Study of Goiter, Dayton, Ohio, March 25-27. Dr. K. W. Kinard, Bryant Building, Kansas City, Mo., Secretary.
American Association for Thoracic Surgery, St. Louis, April 25-27. Dr. Ethan Flagg Butler, Robert Packer Hospital, Sayre, Pa., Secretary.
American Association of Anatomists, Rochester, New York, March 28-30. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Sec'y.
American Association of Pathologists and Bacteriologists, Chicago, March 28-29. Dr. H. T. Karsner, 2109 Adelbert Road, Cleveland, Secretary.
American Climatological and Clinical Association, Old Point Comfort, Virginia, May 2-4. Dr. A. K. Stone, Auburn Street, Framingham Center, Mass., Secretary.
American College of Physicians, Boston, April 8-12. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Secretary.
American Gastro-Enterological Association, Atlantic City, May 6-7. Dr. W. J. Mallory, 1720 Connecticut Ave., N. W., Washington, D. C., Sec'y.
American Proctologic Society, Detroit, May 13-15. Dr. Walter A. Fansler, LaSalle Building, Minneapolis, Secretary.
American Psychopathological Association, Atlanta, Ga., May 17. Dr. Martin W. Peck, 520 Commonwealth Avenue, Boston, Secretary.
American Society for Clinical Investigation, Atlantic City, April 29. Dr. J. T. Wearn, Boston City Hospital, Boston, Secretary.
American Surgical Association, Cleveland, May 2-4. Dr. Lincoln Davis, 205 Beacon Street, Boston, Secretary.
American Therapeutic Society, Pittsburgh, April 5-6. Dr. W. J. Mallory, 1720 Connecticut Avenue, N. W., Washington, D. C., Secretary.
Arkansas Medical Society, Hot Springs, May 7-9. Dr. W. R. Bathurst, 810 Boyle Building, Little Rock, Secretary.
Association of American Physicians, Atlantic City, May 7-8. Dr. J. H. Means, Massachusetts General Hospital, Boston, Secretary.
California Medical Association, San Diego, May 6-9. Dr. Emma W. Pope, 593 Market Street, San Francisco, Secretary.
District of Columbia, Medical Society of, Washington, D. C., May 1. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, D. C., Sec'y.
Florida Medical Association, St. Augustine, April 2-3. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.
Georgia, Medical Association of, Macon, May 8-10. Dr. Allen H. Bunce, 139 Forrest Avenue, N. E., Atlanta, Secretary.
Iowa State Medical Society, Des Moines, May 8-10. Dr. Tom B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.
Kansas Medical Society, Salina, May 7-9. Dr. J. F. Hassig, 804 Huron Building, Kansas City, Secretary.
Louisiana State Medical Society, New Orleans, April 9-11. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 23-25. Dr. John T. King, Jr., 1211 Cathedral Street, Baltimore, Secretary.
Minnesota State Medical Association, St. Paul, May 13-15. Dr. E. A. Meyerding, 11 W. Summit Avenue, St. Paul, Secretary.
Mississippi State Medical Association, Gulfport, May 14-16. Dr. T. M. Dye, Box 295, Clarksdale, Miss., Secretary.
Missouri State Medical Association, Springfield, May 13-16. Dr. E. J. Goodwin, 901 Missouri Building, St. Louis, Secretary.
Nebraska State Medical Association, Omaha, May 14-16. Dr. R. B. Adams, Center McKinley Building, Lincoln, Secretary.
North Carolina, Medical Society of the State of, Greensboro, April 22-24. Dr. L. B. McBrayer, Southern Pines, Secretary.
Ohio State Medical Association, Cleveland, May 7-9. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.
Oregon State Medical Society, La Grande, May 16-18. Dr. F. D. Stricker, Medical Arts Building, Portland, Secretary.
South Carolina Medical Association, Charleston, May 7-9. Dr. E. A. Hines, Seneca, Secretary.
South Dakota State Medical Association, Mitchell, May 7-9. Dr. John F. D. Cook, Langford, Secretary.
Southern California Medical Association, Riverside, April 5-6. Dr. Carl R. Howson, 307 West 8th Street, Los Angeles, Secretary.
Tennessee State Medical Association, Jackson, April 9-11. Dr. H. H. Shoulders, Lambuth Building, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Diseases of Children, Chicago

37: 233-460 (Feb.) 1929

*Monocyte in Active Tuberculosis. K. D. Blackfan and L. K. Diamond, Boston.—p. 233.
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Muscular Hypotonia Associated with Congenital Heart Disease: Case. C. Davison, Pittsburgh, and M. M. Weiss, Louisville, Ky.—p. 359.
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Vitamin Content of Milk Used in Infant Feeding. L. G. Macy and J. Outhouse, Detroit.—p. 379.
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Monocyte in Active Tuberculosis.—Blackfan and Diamond assert that the degree of activity in tuberculosis is reflected in the peripheral blood of infants and of children. A high monocyte-lymphocyte ratio and the presence of epithelioid cells usually mean an active tuberculous infection. An increasing monocyte-lymphocyte ratio and the persistence of a high absolute monocyte count signify extension of the process. Reversal of the ratio (a fall in monocytes and an increase in lymphocytes) denotes healing lesions. In questionable cases, a study of the blood by the supravital technic may lead to a correct diagnosis. When the diagnosis is established, supravital studies of the blood may be of prognostic value in indicating whether the lesion is progressing or undergoing regression.

Administration of Salt and Restriction of Water in Acid-Base Metabolism.—A study was made by Schoenthal of the effects of the administration of sodium chloride and of restriction of water on the total metabolism and the acid-base equilibrium of the body. The administration of sodium chloride to infants in addition to a regular diet and in the absence of restriction of water resulted in: (1) an increase in the chloride concentration of the plasma; (2) usually a moderate reduction of plasma bicarbonate; (3) a tendency for the reaction of the plasma to shift toward the acid side; (4) changes in both directions in the water content of the plasma as shown by protein concentration; (5) a constant increase in excretion of bicarbonate in the urine, with a shift in reaction toward alkalinity; (6) a relative increase in excretion of fixed base over fixed acid; (7) a decrease in György's coefficient in the urine, and (8) a slight or moderate febrile reaction in most instances. The feeding of a concentrated food with restriction of water produced the same changes in metabolism as did the administration of sodium chloride. The blood concentration, however, was marked and fever was high. Symptoms characteristic of alimentary intoxication were observed. The results indicate the possible danger of the indiscriminate administration of salt solutions to infants suffering from anhydremia. The effect of such administration may be to increase the degree of acidosis and to prevent the restoration of a normal acid-base equilibrium.

Rôle of Infection in Rheumatic Children.—McCulloch and Irvine-Jones endeavored to determine how far the routine supervision of rheumatic children in hospitals and clinics affects the tendency to recurrence of rheumatic manifestations. The periods over which the children have been watched vary between nine months and eleven years. All of the patients have been seen within the last three months, and their status as to recurrences of rheumatism and coincident infections of the upper respiratory tract was noted. Clinical and experimental evidence tends to show the close association of infections of the upper respiratory tract with the rheumatic syndrome. Tonsillectomy, when followed by hygienic measures, general and local, is of value in decreasing the number of recurrences of rheumatic fever and chorea. Care in a convalescent home is of immediate benefit to the child but does not seem to lessen recurrences after the child goes home. In a group of ninety children with constant infection in the nasopharynx, the percentage of recurrences of rheumatic fever and chorea was paralleled by the degree of success obtained in combating the infection and improving the living conditions of the child.

Acid-Base Equilibrium in Children with Idiopathic Epilepsy.—The acid-base equilibrium in children with essential epilepsy has been studied by McQuarrie and Keith. The general plan of study was that of placing patients with severe epilepsy on the ketogenic dietary regimen until they were definitely prevented from having seizures and then modifying conditions in various ways to cause recurrence of attacks. The carbon dioxide content of the blood plasma and the p_H and total acetone bodies of the whole blood were determined at intervals before and after such changes. The opinion is expressed that the abnormality in acid-base balance observed in certain cases of epilepsy is probably not the factor of chief importance in the mechanism of seizures but an incidental accompaniment of a more basic disturbance in the physiology of the nerve cell.

Effect of High Cereal Diets on Growth of Infants.—The growth and development of 1,200 Japanese and 869 Filipino infants in Hawaii were observed by Appleton during the first two years of life. The diet of both races is high in rice and lacks milk, and the infants are breast fed. Three hundred and seventy-nine Hawaiian infants were also examined for skeletal development. A diet abundant in cereal without milk is compatible with a high birth rate, moderate infant mortality and good growth of the offspring during lactation for the first five months of life, when the infants are dependent on breast milk alone, if the mother's diet includes suitable, adequate, supplementary food other than milk. After six months, when the infants have reached the age when additional food is needed, the gain in weight is not so rapid as when cow's milk is used as a supplementary food in the diet of infants. Carpal centers develop early in the infants of Hawaii. The subtropical location of the Hawaiian Islands provides sufficient ultraviolet rays in the sunlight to give almost complete protection against rickets, even when the diet of lactating mothers and of infants under 2 years of age does not contain milk. Rickets is extremely rare and is mild when it occurs. The eruption of deciduous teeth occurs early in Japanese and in Filipino infants. It is earlier for the Japanese than for the Filipino infants.

Influence of Cod Liver Oil and Irradiated Milk in Calcium and Phosphorus Metabolism.—The results of the investigation made by Daniels et al. indicate that in infants who receive feedings of modified cow's milk there may be a failure to absorb from the alimentary tract a sufficient amount of calcium and phosphorus to meet the physiologic requirements. Under the conditions of the investigations, the absorption of these elements was greatly influenced by the antirachitic potency of the feeding mixture. Cod liver oil in the amounts used was less effective as a means of supplying radiant energy (vitamin D) than was either irradiated olive oil or irradiated milk. A comparison of the calcium and phosphorus retentions in infants on the simple feedings of pasteurized and boiled milk with those of the high values reported for breast-fed infants shows greater differences between the calcium retentions than

between the phosphorus retentions. Among the infants who received added cod liver oil there was less variation in the phosphorus retention than in the calcium retentions. This was especially noticeable among those infants receiving feedings of pasteurized milk. Drawing conclusions from the data obtained, it seems probable that rickets is related to an imbalance in the amount of calcium and phosphorus retained. In infants receiving modifications of cow's milk, this imbalance appears to be due more frequently to a deficiency of calcium. A calcium-phosphorus retention ratio of approximately 2 (calcium-phosphorus = 2) would seem to be normal for infants under 1 year of age. For optimum growth, infants between the ages of 2 and 9 months should retain between 40 and 50 mg. of calcium and between 20 and 25 mg. of phosphorus per kilogram of body weight. A high percentage of phosphorus in the stools of infants receiving feedings of cow's milk has been shown to be correlated with a low absorption of calcium. By determining the percentage of the ingested phosphorus in the urine and feces, it is believed that early metabolic disturbances incident to the development of rickets in the infant receiving modifications of cow's milk may be detected.

Agents Used in Treatment of Tetany in Infants.—The clinical study made by Bakwin et al. indicates that of the group of agents which exert a lasting effect on the clinical manifestations and the serum calcium of infants with tetany, irradiated ergosterol is the most rapid in its effect. In a series of twenty infants so treated (4 mg. of irradiated ergosterol daily), the clinical symptoms disappeared promptly, and the serum calcium rose to normal on the average in seven days. This is more rapid than cure following ultraviolet radiant energy (fourteen days). Clinical improvement and a rise in the serum calcium are slower and less constant after treatment with irradiated cholesterol than after the administration of either irradiated ergosterol or ultraviolet radiant energy. Cod liver oil is inadequate in the treatment of tetany in infants, its action being too slow and too inconstant. When cod liver oil and irradiated ergosterol are given together, the curative effect is as rapid as when irradiated ergosterol is given alone. The treatment of choice for infants with tetany appears to be a combination of calcium chloride, which has a marked immediate effect on the serum calcium, and irradiated ergosterol.

Hypertension in Young.—That different forms of hypertension, persisting for long periods, can occur in childhood is shown by the cases reported by Amberg. They represent: (1) hypertension associated with coarctation of the aorta, in which the elevation in blood pressure is confined to the upper part of the body; (2) hypertension associated with cardiac decompensation; (3) hypertension intimately associated with disease of the kidney, in which it may be of shorter or longer duration, and at times referable to increased intracranial pressure: (4) hypertension as the consequence of an organic cerebral lesion; (5) hypertension perhaps in the form of so-called essential hypertension, and (6) hypertension in the form of a syndrome of malignant hypertension as described by Keith, Wagener and Kernohan, with changes mainly in the small arteries and arterioles.

Pulmonary Gangrene Due to Spirochetes and Fusiform Bacilli.—A case of pulmonary gangrene due to spirochetes and fusiform bacilli in a child, aged 3 years, is reported by Lewis and Barenberg. The presence of spirochetes and fusiform bacilli in smears taken directly from the larynx and from the fetid material obtained by lung puncture was instrumental in making the diagnosis. The importance of oral hygiene, prompt treatment of spirillar infections of the mouth and good nutrition in the prevention of fusospirochetal pulmonary gangrene is emphasized.

Cause and Cure of Orthostatic Albuminuria.—On the basis of results obtained with patients suffering from orthostatic albuminuria, the statement is made by Samuels that albumin is not found in the urine after the patient has fasted from the moment he gets up in the morning until noon, drinking only water, but walking and sitting up the whole forenoon and consequently being bodily active, while a positive reaction for albumin is found in cases in which the patient takes only milk or his regular meals and indulges in bodily activity. The administration of milk, however, did not cause a positive reaction during the resting hours. The intake of lime water causes the albuminuria associated with bodily activity and the ingestion of food to cease. Its administration after each meal rendered the urine free from albumin over the period of the experiments. This suggests that a lack of calcium ions may have affected the metabolic processes of the protein substances and that the posture of persons is not the main cause of orthostatic albuminuria.

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*Immunologic Studies of Typhoid Vaccination by Mouth: I. Agglutinins Formed in Persons Treated Orally with Triple Typhoid Bacterin. R. E. Hoffstadt and R. L. Thompson, Seattle.—p. 1.
*Id.: II. Complement Fixations and Precipitin Reactions in Persons Treated Orally with Bile and Triple Typhoid Bacterin. R. E. Hoffstadt and R. L. Thompson, Seattle.—p. 21.
*Id.: III. Agglutinins and Complement Fixation Reactions Formed in Persons Treated with Typhoid Capsules. R. E. Hoffstadt and C. L. Martin, Seattle.—p. 37.
*Intramuscular Infection of Guinea-Pigs with Spores of Cl. Botulinum. G. E. Coleman, San Francisco.—p. 47.
*Experimental Infection with Spores of Cl. Tetani: Tetanus V. G. E. Coleman, San Francisco.—p. 57.
*Effect of Various Agents, Chiefly Sunlight, Upon Susceptibility of Rachitic Rats to Infection. E. C. Robertson, Toronto.—p. 75.
*Cancer and Tuberculosis. R. Pearl, Baltimore.—p. 97.
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Induced Variations in Asexual Cycle of Plasmodium Cathemerium. G. H. Boyd, Augusta, Ga.—p. 181.
Vermilion Spotted Newt (Diemictylus Viridescens Rafinesque) as Agent in Mosquito Control. R. Matheson and E. H. Hinman, Ithaca, N. Y. —p. 188.
Accessory Etiologic Factors of Respiratory Infection in Rabbits: II. Effect of Fatigue on Susceptibility of Rabbits to Intranasal Infection with Type I Pneumococcus. G. H. Bailey, Baltimore.—p. 192.
Precipitin Reactions with Various Tissues of Ascaris Lumbricoides and Related Helminths. G. A. Canning, Chicago.—p. 207.
Kala Azar Transmission Problem: Field and Laboratory Studies in China: I. Epidemiology. C. W. Young and M. Hertig, Peking, China.—p. 227.

Agglutinins Treated Orally with Triple Typhoid Bacterin.—The evidence for oral immunization against the typhoidal fevers has largely been based on clinical data. Hoffstadt and Thompson endeavored to determine a possible experimental foundation for such clinical claims. They vaccinated orally a group of ninety-three university students, ranging from 19 to 40 years in age, with the triple typhoid bacterin. Five students were vaccinated subcutaneously as controls. The systemic response was less severe with oral inoculation than when the subcutaneous method was used. Of the ninety-three persons treated, 88.5 per cent showed agglutinins for typhoid and a lesser number, agglutinins for the paratyphoids. The majority showed a latent period of from three to four weeks for all organisms. This coincides with the third inoculation of the subcutaneously inoculated individuals. Bile seems to hasten slightly the appearance of the agglutinins. Titers as high as those reported in the literature for subcutaneously vaccinated individuals were not reached. The largest number of maximum titers was reached in the fourth and fifth weeks after ingestion of the bacterin. In the controls the maximum was reached at the time of the last inoculation. The duration in the blood of vaccinated individuals, is too varied to justify any attempt at generalization. The disappearance was not regular. A fair proportion of agglutinins was demonstrated at the end of five months. Fewer were shown at the end of nine months. Previous treatment with the subcutaneous method has no effect, except in some cases which show a slight rise in titer. This was true for all persons who had a history of typhoid.

Id.—Hoffstadt and Thompson treated thirty-nine persons orally with triple typhoid bacterin and their blood was tested for complement fixations, precipitins and agglutinins. Eighty-eight per cent of the thirty-nine persons showed complement fixations and precipitations. The use of bile had no effect on the production of complement fixations and precipitins. The latent period for complement fixations was from four to five weeks in the case of typhoid, and from five to seven weeks for the paratyphoids, while the precipitins appeared earlier. The duration of complement fixations and precipitins was variable. The disappearance is irregular. Complement fixations were demonstrated after from five and nine months in orally inocu-

lated individuals. A previous history of typhoid or of subcutaneous inoculation does not affect the production of complement fixations or of precipitins. There seems to be little relationship between the presence of agglutinins, complement fixations and precipitins. The percentage of complement fixations found in these results correspond closely to that found in active cases of typhoid and is higher than that reported for persons inoculated subcutaneously with the triple typhoid bacterin. Bile seems to have no such part in the production of complement fixations as it has in the formation of agglutinins. The antibody which seems to remain longest in the blood is the antibody of the complement fixation reaction. This has been found in the cases of typhoid. The whole of the oral inoculation seems to follow more closely that of typhoid than that of a subcutaneous inoculation.

Agglutinins and Complement Fixation Reaction Treated with Typhoid Capsules.—Hoffstadt and Martin have determined that agglutinins and complement fixations can be produced by oral inoculation with triple typhoid bacterin in the dry form as a capsule. There is no delay in the appearance of the agglutinations or complement fixation reactions over that which was found with the liquid triple bacterin method. Neither antibody is consistently present in the immune person.

Intramuscular Infection of Guinea-Pigs with Spores of Cl. Botulinum.—Evidence is given by Coleman that with formaldehyde as a tissue debilitant, approximately twenty-five spores of *Cl. botulinum* inoculated into the muscles of guinea-pigs may grow luxuriantly and produce a potent toxin. *Cl. botulinum* sporulates readily in these tissues. Suggestive data are given which may have a bearing on the absence of reported botulism due to contaminated wounds.

Experimental Infection with Spores of Cl. Tetani: Tetanus V.—Coleman states that guinea-pigs may be infected with the spores of *Cl. tetani* more regularly by the use of formaldehyde as a tissue debilitant than by other usual methods. By the injection of formaldehyde, guinea-pigs have been infected with approximately five spores of *Cl. tetani.*

Effect of Sunlight on Susceptibility of Rachitic Rats to Infection.—Experiments made by Robinson showed that rachitic rats exposed to the sun for two hours daily (from 11 a. m. to 1 p. m.) for four weeks have an increased resistance to infection when compared with corresponding rats kept inside. Of 263 sun-exposed rats, 57 per cent survived; of 241 rats kept inside, 32 per cent survived. Rachitic rats exposed to the mercury vapor lamp (at a distance of 30 inches) for fifteen minutes daily for four weeks are more resistant to infection than similar rats kept inside, but are somewhat less resistant than corresponding rats exposed to the sun for two hours daily. A few rats exposed to the lamp for seven and one-half minutes showed as high a degree of resistance as the sun-exposed rats. Rachitic rats kept in the cool outside air for two hours daily for four weeks, but protected from the sun, are probably not much less susceptible to infection than such rats kept inside. These experiments showed much variation. The feeding of appropriate amounts of irradiated ergosterol for four weeks to rachitic rats kept inside probably raises their resistance to infection. Cod liver oil, however, does not have this effect. Considerable variation was shown in these experiments also. Normal rats exposed to sunshine for two hours daily for four weeks do not withstand the artificial infection as well as similar rats kept inside. Robinson concludes that the increased resistance in the sun-exposed rats is probably due to the curing of their rickets.

Cancer and Tuberculosis.—In this study Pearl first set up, by a critically adequate procedure, a case-for-case control series of patients examined at autopsy, each one of whom was of the same sex, age and color (race) as one of the 816 persons examined at autopsy in the Johns Hopkins Hospital and found to have carcinoma, sarcoma or some other form of malignant tumor. The individuals in the control series did not have cancer or any other malignant tumor. Active tuberculous lesions were found at autopsy in only 6.6 per cent of 816 persons having malignant growths, and 16.3 per cent of 816 persons without malignant tumors, but of the same race, sex and age as the former group. Active tuberculous lesions occurred more than twice as frequently in the controls as they did in the malignant group in the present material taken as a whole. Active tuberculous lesions occur 2.2 times more frequently among the controls of the carcinomatous group than among those having carcinoma, whereas such active tuberculous lesions occur 3.3 times more frequently among the controls of the sarcomatous group than among those having sarcoma. Healed tuberculous lesions (apical scars, calcified tubercles in glands) occur with equal frequency in the malignant and the control groups, whether they are taken as a whole, or when carcinoma and sarcoma (and other growths) are separately treated. In this autopsy experience, persons who had tuberculous lesions of any degree of activity whatever showed a relative incidence of cancer and other malignanut tumors only a little more than half as great as that exhibited either by persons with no tuberculosis discoverable at autopsy or by those who had only old, healed tuberculous lesions. In 886 persons of both sexes and races compared, who had a great deal of florid, active tuberculosis (acute, ulcerative tuberculosis of the lungs or intestines, tuberculous meningitis, caries of the vertebrae), there were only eleven cases of malignant tumors, or 1.2 per cent of the total number. On the other hand, in 886 persons with no recorded lesions of tuberculosis at autopsy, having the same age, sex and racial distribution, case for case, as the very actively tuberculous, there were eighty-two cases of malignant tumors, or 9.3 per cent. Among the females, both white and colored, there was not a single case of malignant growth in those with much active tuberculosis. In general, Pearl says it must be concluded that there is a definite and marked incompatability or antagonism between the two diseases, cancer and tuberculosis, of such sort that they occur together at the same time in florid activity in the same individual only with great rarity.

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*Value of Oxygen Treatment After Thyroidectomy. S. F. Haines and W. M. Boothby, Rochester, Minn.—p. 1.
Use of Iodine in Hyperthyroidism. A. S. Jackson, Madison, Wis.—p. 7.
Borderline Hyperthyroidism. H. M. Clute, Boston.—p. 11.
Iodine Question in Animal Experiments. D. B. Breitner, Vienna, Austria.—p. 17.
*Thyroidectomy in Mentally Disturbed with Exophthalmic Goiter: Twelve Cases in Which Psychosis was Relieved by Operation. J. L. DeCourcy, Cincinnati.—p. 21.
Treatment of Desperate Goiter Patient. J. E. Else, Portland, Ore.—p. 24.
Relation of Goiter to Other Endocrine Glands. J. H. Hutton, Chicago. —p. 28.
Injuries to Parathyroids: Subsequent Management. C. F. Kemper, Denver.—p. 32.
Interpretation of Clinical Histories of More Than 1,000 Toxic Goiter Patients. B. T. King, Seattle.—p. 38.
Traumatic Ophthalmology: Contusion of Eyelids and Concussion of Eyeball. C. Berens and R. R. Losey, New York.—p. 45.
Importance of Early Treatment of Recent Fractures of Nose. W. W. Carter, New York.—p. 51.
Surgical Consideration of Cervix Uteri. R. C. Chaffin, Los Angeles.—p. 56.
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Rivanol Dextrose: New Antiseptic for Application to Mucous Surfaces of Urinary Tract. T. C. Hill, New York.—p. 67.
Fat in Traumatic Effusions of Knee Joint. D. H. Kling, Los Angeles. —p. 71.
Rudimentary Horn Pregnancy: Case. A. Koplowitz, New York.—p. 75.
Renal Pelvis Obstruction Due to Aberrant Vessels. W. H. McNeill, New York.—p. 80.
Subserous Cholecystectomy. E. L. Mortimer, Baltimore.—p. 83.
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Multiple Calculi in Left Pelvis of Horseshoe Kidney. S. R. Woodruff, New York.—p. 90.
Renal, Ureteral, Vesical and Impacted Urethral Calculi Simultaneously in Same Patient. S. R. Woodruff, New York.—p. 91.
Transplantation of Ureters into Bowel. A. R. Stevens, New York.—p. 92.
Leukoplakia in Bladder Diverticulum. A. R. Stevens, New York.—p. 93.
Dermoid Cyst of Kidney. J. J. Valentine, New York.—p. 93.
Bilateral Snapping Hip. A. M. Dickinson, Albany, N. Y.—p. 97.
Typhoid Gallstones. A. M. Dickinson, Albany, N. Y.—p. 101.
Bilateral Snapping Hip. A. M. Dickinson, Albany, N. Y.—p. 97.

Value of Oxygen Treatment After Thyroidectomy.—Oxygen was administered by Haines and Boothby to patients having severe reactions after thyroidectomy, especially those with cyanosis resulting from pulmonary edema, bronchopneumonia and laryngeal or tracheal obstruction. The patients showed, as a rule, marked subjective improvement. Usually the fever subsided rapidly. Pulse and respiration rates were

lowered. Dyspnea was partially or completely relieved. The authors suggest the probability that the development of pneumonia was prevented in many instances. Their observations suggest that not infrequently death may be prevented by efficient oxygen treatment in suitable cases.

Thyroidectomy in Mentally Disturbed with Exophthalmic Goiter.—DeCourcy reports twelve cases of exophthalmic goiter with mental disturbance in which the psychosis was relieved by operation. Two of these patients were young subjects, in whom diagnoses of dementia praecox had been made and poor prognoses given; yet both recovered. In two other cases there was no benefit from the operation.

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Amaurotic Family Idiocy and General Lipoid Degeneration. B. Sachs, New York.—p. 247.
*Pluriglandular Syndrome Involving Calcium Deficiency and Correlated with Behavior Disturbances. W. Timme, New York.—p. 254.
*Tumors of Spinal Cord Which Project Into Posterior Cranial Fossa: Case in Which Growth Was Removed From Ventral and Lateral Aspects of Medulla Oblongata and Upper Cervical Cord. C. A. Elsberg and I. Strauss, New York.—p. 261.
Incisura of Crus Due to Contralateral Brain Tumor. J. W. Kernohan and H. W. Woltman, Rochester, Minn.—p. 274.
*Intra-Uterine Poliomyelitis: Recrudescence of Symptoms After Fifty Years. C. S. Potts, Philadelphia.—p. 288.
*Amyotrophic Lateral Sclerosis with Objective and Subjective (Neuritic) Sensory Disturbances. I. S. Wechsler, S. Brock and A. Weil, New York.—p. 299.
*Tabes Dorsalis: Pathology and Pathogenesis. G. B. Hassin, Chicago.—p. 311.
*Sugar Content of Blood in Emotional States. K. M. Bowman and J. Kasanin, Boston.—p. 342.
Pathologic Sleep and Similar Conditions: Studied by Electrical Skin Resistance Method. C. P. Richter, Baltimore.—p. 363.
Relation Between Wassermann Reactions in Blood and in Cerebrospinal Fluid: Origin of Antibodies. S. Katzenelbogen, Baltimore, S. Rogovine and V. Monedjikova, Geneva, Switzerland.—p. 376.
*Chondromyxosarcoma of Sixth Cervical Vertebra. E. A. Sharp and W. F. Jacobs, Buffalo.—p. 381.
*Recurrence of Stuttering Following Shift from Normal to Mirror Writing. L. E. Travis, Iowa City.—p. 386.
*Motor Phenomena in Sciatica. D. A. Schambouroff, Moscow, Union of Socialistic Soviet Republics.—p. 392.
*Sciatic Syndrome. M. Grossman and M. Keschner, New York.—p. 398.
*Leukocyte Count in Epilepsy. H. A. Patterson and S. M. Weingrow, Sonyea, N. Y.—p. 412.
Subacute Endocarditis Simulating Meningitis. J. T. Ullom, Philadelphia.—p. 418.
Anterior Poliomyelitis and Superinfection with Epidemic Encephalitis: Case. M. C. Borman, Montgomery, W. Va.—p. 423.

Pluriglandular Syndrome Involving Calcium Deficiency.—Timme analyzes nineteen cases in which the chief complaints were those of incorrigibility, nonamenability to discipline, and assaultiveness; the patients were easily aroused to a high pitch of anger at the slightest provocation—a word, an insinuation or even a glance being sufficient to arouse an intense antagonistic reaction. These patients became problem cases at home, at school or in whatever environment they found themselves, because of their nonadaptability and uncompromising attitude. Occasionally their behavior became so exaggerated that apparently hypomanic states developed therefrom, and several of these patients had to be confined in institutions until the symptoms were ameliorated. At home, a harsh word from any member of the family, at the table for instance, would result in a plate or knife or some other utensil being thrown at the aggressor. In school, a blow, a shout or a curse would be hurled at a fellow student, or even at the teacher. Because these patients seemed to the observer to have many points in common, such as stature, bodily features and biochemical conditions, it seemed important to determine whether they formed an actual group which could be differentiated by certain stigmas, in both the physical and the biochemical domains. Timme collected the reports of a representative group of such cases and arranged and classified the observations to bring out some of the common correlated features. Gross behavioristic abnormalities, with deficient utilization of calcium, parathyroid deficiency and pineal involvement, associated with secondary disturbances in growth, blood pressure and gonadal development, made up the clinical picture. This syndrome lends itself to therapeutic attacks. Parathyroid extract-Collip was given hypodermically in doses varying from 5 to 7 minims (0.3 to 0.4 cc.). The effect was noteworthy: The tenseness, the myotatic irritability and the conduct disorders were rapidly ameliorated; growth increased in speed; the calcium content of the blood was increased to normal ratios, and these effects were noted as well in patients who had an apparently normal calcium content of the blood as in those with low calcium values. (From this the conclusion was drawn that it was not necessarily the calcium content of the blood that mattered, but the utilization thereof that was of importance, the parathyroid gland producing this utilization.) Timme outlines a well formulated treatment consisting of calcium lactate by mouth, parathyroid extract-Collip hypodermically and direct or artificial sunlight regularly administered. The results warranted all these measures, for all the patients improved, though in different degrees.

Tumors of Spinal Cord Projecting into Posterior Cranial Fossa.—Elsberg and Strauss emphasize that in every patient with signs and symptoms of compression of the uppermost segments of the spinal cord, the possibility that the growth may involve both the vertebral canal and the posterior cranial fossa must be kept in mind. If the history obtained from the patient describes headache or pain in the head which preceded, by a definite period, the signs and symptoms of compression high in the cervical cord, it is probable that the growth is located in both the posterior cranial fossa and the vertebral canal, and also that the growth originated in the cranial chamber and extended into the vertebral canal through the foramen magnum. The presence of nystagmus, of weakness of one side of the face or of sensory disturbances of the cornea or within the remaining area of distribution of the trigeminal nerve on one or the other side make it probable, but not certain, that the growth involves not only the upper cervical segments but also the posterior cranial fossa. If the early symptoms began in the neck, shoulder or an upper extremity, the new growth was primary within the vertebral canal, even though it may have finally involved the posterior cranial fossa and given rise to disturbances of some of the cranial nerves. The absence of disturbances of the cranial nerves does not negate the possibility that part of the growth lies in the posterior fossa, and the presence of such signs is not certain evidence that the growth extends through the foramen magnum into the cranial cavity.

Intra-Uterine Poliomyelitis.—The point made by Potts is that there seems to be good reason to believe that cerebral disease from various causes, some of which are either toxic or infectious, may occur in the fetus in utero, and that some cases of so-called Little's disease are so caused. He cites one case, ending fatally, in which a complete examination of the brain and spinal cord was made. The condition was diagnosed as meningovascular syphilis; arteriosclerosis (senile type) and old poliomyelitis. Potts discusses the question, Did the patient have poliomyelitis originating in utero? The patient's family, consisting of several brothers, were intelligent and they were positive that the patient had been born with the symptoms manifested later. The patient had syphilis and from his history it seems probable that it was hereditary in origin. Another point of interest is the increase in the severity and character of the symptoms after fifty years. Up to the time the patient entered the hospital, he had been able to walk and had supported himself by selling newspapers. From the time of admission he gradually became weaker until he could not walk and fibrillary twitching of the muscles became noticeable. It is believed that the areas of softening and degeneration of the pyramidal tracts described occurred later in life. This, with later degeneration of the anterior horn cells accounting for the fibrillary twitchings, was the cause of the recrudescence.

Amyotrophic Lateral Sclerosis with Neuritic Sensory Disturbances.—The two cases described by Wechsler et al. were so unusual that for a long time the diagnosis of amyotrophic lateral sclerosis was not even suspected. Both began with signs and symptoms in the lower extremities, in itself an unusual feature, and were characterized by sensory disturbances of a neuritic nature. In case 1, the pains were so severe in the lower sacral dermatomes that a diagnosis of tumor of the cauda equina or neuritis was made. In view of this fact, a laminectomy was performed but a pathologic process was not found. After many months, the pains gradually subsided, and the objective sensory changes disappeared. It was only with the advent of segmental atrophies, fibrillations and hyperreflexia higher up that the true condition, subsequently confirmed by

pathologic study, became apparent. In case 2, although the pains were much less marked, the objective sensory disturbances and the nerve tenderness were so definite that for a long time the diagnosis of multiple neuritis was entertained. Here, too, the signs and symptoms began in the lower extremities, and it was only with the subsequent appearance of nuclear and lateral column signs higher up that the correct diagnosis was made.

Pathology and Pathogenesis of Tabes Dorsalis.—Hassin's material, exclusive of the cases studied at Hamburg, comprised eighteen cases of pure, uncomplicated tabes, eight cases of spinal syphilis and thirteen cases of mixed nature (carcinoma, pachymeningitis, tumors and abnormal cords). The roots were removed together with the spinal ganglions and were sectioned either longitudinally or transversely. Whenever it was possible, for instance in the cervical region, sections were made through the spinal ganglions, the roots and the meninges, including the dura. Hassin summarizes his observations as follows: The histologic changes in tabes dorsalis may be classified as degenerative and inflammatory; the degenerative changes involving the posterior columns and the arachnoid portion of the posterior roots are a primary process due to disturbed circulation of the tissue fluids in the spinal cord, especially in its posterior columns; the inflammatory changes occur in the dura and the pia-arachnoid, in which they provoke reactive phenomena. In the dura they occur as infiltrations with hematogenous elements and vascular changes typical of syphilis; in the arachnoid they appear as a proliferation of the cells of the arachnoid (arachnoid or mesothelial cells). These are most likely what Richter designated as "granulation" cells; the arachnoid cells invade the perineural spaces, obstruct them and thus interfere with the flow of cerebrospinal fluid from the subarachnoid space, indirectly causing phenomena of stasis in the spinal cord; the stasis results in rarefaction of spinal cord tissue and its ultimate sclerosis, which shows as islands of degeneration in the posterior columns. The pia-arachnoid phenomena are secondary to the distinctly inflammatory conditions of the dura and the epidural space; invading the subjacent structures, they result in the changes mentioned in the two previous statements. The strangulation phenomena of Obersteiner and Redlich, Nageotte, Richter and others are contributory but are not the main factors. Hassin feels that many clinical phenomena can be better understood on the basis of the epidural origin of tabes with involvement of the peripheral nerves in the epidural space.

Sugar Content of Blood in Emotional States.—The blood sugar of 148 patients showing emotional states of various kinds was studied by Bowman and Kasanin. In the majority of these cases the blood sugar content was normal according to accepted standards of from 80 to 120 mg. of dextrose per hundred cubic centimeters of blood. In forty-one control cases the blood sugar content was considerably lower than in the psychotic cases. Analysis of the various factors that might be concerned with the high blood sugar values shows that more cases showing fever and vague physical symptoms presented high blood sugar contents than would be expected as a result of chance alone. The only association between high blood sugar values and mood occurred in nine women with blood sugars of 120 and over who displayed excitement. Otherwise there was no correlation between mood and high blood sugar content; furthermore, in some cases an abnormally low amount of blood sugar occurred with excitement, depression and other abnormal emotional conditions.

Chondromyxosarcoma of Sixth Cervical Vertebra.—A vertebral tumor of the type of a chondromyxosarcoma of the sixth cervical vertebra and intervertebral disk, which produced compression paraplegia with the clinical symptoms, at the onset, of amyotrophic lateral sclerosis is reported by Sharp and Jacobs. The spinal cord showed marked flattening from pressure outside the dura but no degeneration of any portions of the structure of the cord. Multiple metastases were present in the lungs, which showed tumor masses of the same character as those found in the vertebra and spinal canal.

Recurrence of Stuttering Following Shift from Normal to Mirror Writing.—Travis reports the case of an adult with a severe grade of writing disability who began to stutter shortly after he undertook to substitute the mirrored form for the ordinary form of writing. Travis suggests that the speech disturbance was due to a conflict between the two hemispheres, comparable to that which frequently occurs when right-handed writing is forced on a left-handed child. Once the new form of writing was mastered and definitely established in the new direction, this conflict disappeared, and the stuttering also stopped.

Motor Phenomena in Sciatica.—Schambouroff asserts that a series of motor phenomena are to be observed in some cases of sciatica, chiefly in acute cases. Some of these phenomena are seen in trunk and root sciatica (Kernig and Bechterew signs), and some in root sciatica (symptoms of contralateral sciatica and motor symptoms with flexion of the head). These phenomena are of a reflex nature and are immediately connected with the pains arising from tension and irritation of the nerve and roots. Besides this, the immediate irritation of the motor part of the roots apparently plays a part in their origin. As belonging to the objective symptoms of sciatica, these phenomena allow one to differentiate organic disease from the functional pains and reflex neuroses sometimes following sciatica and also to recognize aggravation and simulation of the illness. Moreover, they should greatly aid one in determining the precise localization of the disease.

Sciatic Syndrome a Misleading Term.—Three hundred and seventeen cases of this syndrome were analyzed by Grossman and Keschner. They consider that the term "sciatica," as it is generally employed, is misleading. It tends to direct attention away from the most common and remediable underlying cause of the various clinical conditions characterized by pains in the lower part of the back and limbs. In the absence of a polyneuritis or polyradiculitis from whatever cause (toxic, infectious, metabolic, constitutional, vascular), a primary mononeuritis or radiculitis of the sciatic nerve is extremely rare. In practically all of the authors' cases the sciatic syndrome was secondary to some pathologic process in the osseo-arthritic structures or their contiguous soft parts in the region under discussion. Cases in which the patients have paroxysmal attacks of lancinating or shooting pains in the lower part of the back and in the lumbosacral distribution without objective evidences of involvement of the lumbosacral roots or nerves, or of the osseo-arthritic structures or their adjacent soft parts (muscles, tendons, fascia) in this region, should be designated as "sciatic neuralgia." The presence of only three such cases in a series of 317 indicates the rarity of this condition, notwithstanding that most authors emphasize its frequency and employ the term "sciatica" as if it were synonymous with "sciatic neuralgia." By far the largest number of patients presenting the sciatic syndrome show demonstrable evidences of involvement of the osseo-arthritic system or of the contiguous soft parts in this region. There are a certain number of cases in which the sciatic syndrome may appear as an early and prominent feature of a clinical picture, the underlying cause of which is a neoplasm of the spine, pelvis, cord, meninges or roots. The fallacy of designating these cases as "sciatica" is self evident. Except in such rare cases as sacralization of the fifth lumbar vertebra, or calcification or ossification of the soft parts, or in primary or metastatic, neoplastic or tuberculous processes in the spine or pelvis, positive roentgen observations of spondylitis or arthritis are not conclusive as to the etiologic relationship of these observations to the sciatic syndrome.

Leukocyte Count in Epilepsy.—In 182 cases of epilepsy studied by Patterson and Weingrow, approximately 50 per cent showed an increase over the normal in the total white cell count, while in 20 per cent the count fell below normal. The leukocytosis observed was not neutrophilic but lymphocytic. Definite evidence of epileptic leukocytosis being influenced by digestion of food was lacking. Within the limits of physiologic variation, the rise in the leukocyte count is the same in nonidiopathic as in idiopathic epilepsy. A remote effect on the white cell count is not produced by either grand or petit mal seizures in idiopathic and nonidiopathic epilepsy. It seems that the leukocytosis frequently encountered in epilepsy is not due to the disease per se but to some concomitant phenomenon. The authors assert that a connection between the leukocyte count in epilepsy and the presence or absence of an aura apparently does not exist. Their observations failed to show any relation

between onset and duration and the white cell count in epilepsy. The leukocyte count in epilepsy does not appear to be affected by the secondary anemia which often accompanies this condition.

Archives of Physical Therapy, X-Ray, Radium, Omaha

10: 1-44 (Jan.) 1929

Electrothermic Surgery, Radium and Roentgenotherapy in Management of Malignant Diseases of Eye, Ear, Nose and Throat. J. T. Stevens, Montclair, N. J.—p. 1.
Physical Therapy in Fungus Disease. A. F. Tyler, Omaha.—p. 10.
Diagnosis of Nontuberculous Pulmonary Diseases. A. Arkin, Chicago. —p. 13.
Value of Physical Therapy in Internal Medical Diseases. G. Clement, Duluth, Minn.—p. 17.
Relationship of Physical Therapy to Dermatology. L. B. Greene, Kansas City, Mo.—p. 20.
Ultraviolet in Treatment of Dental Pathology. H. G. Frankel, St. Louis. —p. 21.
Graph in X-Ray Dosage Computation. L. J. Friedman, New York.—p. 25.
Chronic Rhinitis. A. R. Hollender, Chicago.—p. 26.

Georgia M. Assoc. Journal, Atlanta

18: 1-49 (Jan.) 1929

Evolution of Medical School. G. L. Kelly, Augusta.—p. 1.
Medical Organization in Georgia. W. A. Mulherin, Augusta.—p. 2.
Foreign Bodies in Food and Air Passages. M. Equen, Atlanta.—p. 9.
Chronic Infection of Maxillary Sinus: Relation to General Medicine. W. C. Warren, Jr., Atlanta.—p. 14.
Nausea and Vomiting of Early Pregnancy. O. R. Thompson, Macon. —p. 17.
Studies on Wassermann Test: II. Influence of Antigen. P. Eaton and F. L. Damren, Augusta.—p. 20.
Observations in European Clinics. S. C. Davis, Atlanta.—p. 22.
Chorea: Dangerous Complication of Pregnancy: Case Treated with Cesarean Section. J. A. Hunnicutt, Jr., Athens.—p. 23.
Cancer of Uterine Cervix: 222 Cases. J. F. Denton, Atlanta.—p. 24.
Carcinoma of Cervix Uteri: 222 Cases. C. B. Stewart, Atlanta.—p. 27.
Insulin in Malnutrition. J. K. Fancher, Atlanta.—p. 30.
Blood Creatinine: Case. M. L. B. Clarke, Atlanta.—p. 34.
Abdominal Pain: Importance of Urologic Investigation. S. J. Sinkoe, Atlanta.—p. 36.

Iowa State M. Soc. Journal, Des Moines

19: 1-40 (Jan.) 1929

Health Régime in Public Schools. E. L. Rohlf, Waterloo.—p. 1.
Fundamental Points in Roentgen-Ray Diagnosis of Bone Tumors. R. F. Bellaire, Sioux City.—p. 5.
Professional Cooperation. T. G. Fultz, Pella.—p. 9.
Medical Publicity from Standpoint of Layman. W. N. Keuneman, Knoxville.—p. 12.

Johns Hopkins Hospital Bull., Baltimore

44: 1-81 (Jan.) 1929

*Study of Streptococcic Puerperal Infection. J. W. Harris and J. H. Brown, Baltimore.—p. 1.
*Cardiazol. C. Johnston, Baltimore.—p. 32.
*Action of Mercurochrome, Horse Serum and Mixtures Thereof on Pneumococcus Infections in Mice. J. H. Hill and M. G. Ellis, Baltimore. —p. 40.
Problems of Human Genetics. J. Bauer, Vienna, Austria.—p. 52.

Streptococcic Puerperal Infection.—Of all the 113 cases of puerperal infection studied bacteriologically by Harris and Brown, 67 per cent showed streptococci of various kinds in the uterine cavity. Evidence is offered which seems to show that puerperal infection due to aerobic, beta-hemolytic streptococci is almost invariably exogenous in character. Puerperal infection due to gamma nonhemolytic streptococci is probably endogenous in origin in many cases, and in the authors' series was found to occur five times more frequently in colored than in white women. Aerobic and anaerobic streptococci were found with approximately equal frequency, which emphasized the necessity of anaerobic methods in suspected cases of streptococcic puerperal infection. Almost one half of the aerobic streptococci were of the beta-hemolytic variety and of these the majority belonged to the *S. pyogenes* group. The majority of the anaerobic streptococci were of the gamma type in blood agar and many of them failed to ferment any of the test substances employed. The relatively few mannite-fermenting streptococci in this series would seem to indicate that the streptococci causing puerperal infection are rarely of fecal origin.

Metrazol.—Pentamethylenetetrazol, or metrazol, was introduced originally as a substitute for camphor. It apparently possesses several advantages over camphor, owing to the fact that it is water soluble, can be sterilized, keeps indefinitely, and acts very rapidly after peroral, subcutaneous or intravenous administration. The results of experimental work indicate that metrazol acts mainly by stimulation of the vasomotor and respiratory center and accordingly should be of definite clinical value in the treatment of cases of circulatory collapse or in poisoning by morphine. Definite evidence of any direct action on the heart has, however, not been established. The action of metrazol has been studied by Johnston chiefly in cases of chronic myocardial insufficiency. No effect was seen in the majority of the patients, but three, one of whom had advanced tuberculosis, were apparently improved by the drug. Of these three, the blood pressure was raised in two, slowing of the pulse rate occurred in two, slight diuresis occurred in one, and all were subjectively improved. In no case was there any effect on the electrocardiographic record, either when taken daily during the period of administration of the drug or when taken at frequent intervals following the administration of a single dose. No harmful effects were noted. Johnston concludes that although the chief field of usefulness for metrazol is probably in the treatment of acute circulatory collapse, it may occasionally be used to advantage in cases of chronic myocardial insufficiency.

Action of Mercurochrome on Pneumococcus Infections in Mice.—Series of mice, inoculated with various dilutions of pneumococcus cultures, were treated by Hill and Ellis with mercurochrome alone, with horse serum alone and with mixtures of mercurochrome and serum. Mercurochrome alone had definite therapeutic action when used in dosages of from 15 to 50 mg. per kilogram, better results being obtained with moderate doses than with 100 mg. per kilogram. Normal horse serum had marked protective action against culture dilutions of 1:1,000,000 or higher. Mice treated with mixtures of mercurochrome and serum showed a markedly favorable therapeutic response as compared with mice receiving either drug or serum alone. The therapeutic action shown by mercurochrome and by normal horse serum separately and by the mixture is unrelated to direct germicidal action, as evidenced by the failure of in vitro mixtures of culture dilutions with these substances to show any diminution in virulence.

J. Pharmacol. & Exper. Therapeutics, Baltimore

35: 1-98 (Jan.) 1929

*Comparative Action of Hypertonic Solutions of Chlorates and Chlorides of Potassium, Sodium, Calcium and Magnesium. J. L. Ulrich and V. A. Shternov, Bloomfield, N. J.—p. 1.
Survival of Circulation in Frog Web After Cardiectomy. O. W. Barlow, Cleveland.—p. 17.
Binding Power of Serum for Alkaloids and Inhibition of This Effect By Homologous Alcohols: Theory of Narcosis. R. Beutner and E. Hyden, Louisville, Ky.—p. 25.
Value of Solution of Glucose in Maintaining Acid-Base Equilibrium of Blood in Pregnant Animals: II. Effect of Period of Chloroform Anesthesia in Pregnant Animals. Lack of Protection Conferred by Solution of Glucose. W. deB. MacNider, Chapel Hill, N. C.—p. 31.
Effects of Drugs on Secretion of Uric Acid in Fowl. O. S. Gibbs, Halifax, Nova Scotia.—p. 49.
Accurate Constant Rate Injection Apparatus. O. S. Gibbs, Halifax, Nova Scotia.—p. 63.
Susceptibility of Suprarenalectomized Rats to Morphine Intoxication. E. M. MacKay and L. L. MacKay, San Francisco.—p. 67.
Action of Certain Heterocyclic Compounds on Autonomic Nervous System. R. Hunt and R. R. Renshaw, New York.—p. 75.

Comparative Action of Chlorates and Chlorides.—Results are presented by Ulrich and Shternov which show that calcium, magnesium, potassium and sodium chlorate are less toxic than the chlorides of these metals. Only in large doses in hypertonic solutions are these chlorates and chlorides toxic. The toxicity of these salts is evidently due to the depression they eventually produce, particularly on the nervous system.

Journal of Preventive Medicine, Chicago

3: 1-79 (Jan.) 1929.

Relationship of Hemolytic Streptococci to Spread of Scarlet Fever. G. Moriwaki, Dairen, China.—p. 1.
Correlation Between Skin Test and Active Immunization in Scarlet Fever. G. Moriwaki, Dairen, China.—p. 13.
To What Extent Do Toxin-Antitoxin Mixtures Sensitize to Therapeutic Serum? J. E. Gordon and S. M. Creswell, Detroit.—p. 21.
Absenteeism Among Students of Chicago Normal College. D. V. P. Phipps, Chicago.—p. 31.
Seasonal and Age Distribution of Deaths from Typhoid in New York, Chicago and Providence, R. I. J. H. Mills, Chicago.—p. 37.

Hypersensitiveness to Helminth Proteins: II. Cutaneous and Precipitin Tests with Ascaris Extracts in Infected and Immunized Animals. F. A. Coventry, Chicago.—p. 43.
Epidemiologic and Bacteriologic Study of Epidemic Meningitis in Chicago. A. S. Pope and J. L. White, Chicago.—p. 63.

Medical Journal and Record, New York

129: 121-180 (Feb. 6) 1929

Calcium Metabolism as Related to Therapy. H. O. Colomb, Washington, D. C.—p. 121.
Acute Myelogenous Leukemia: Case. H. Lerner, Pittsburgh.—p. 125.
Rôle of "Three T's" and "Reform Diet" in Ophthalmology. G. H. Bell, New York.—p. 126.
Visualization of Female Pelvic Viscera by Rubin Method. H. Cohen, New York.—p. 130.
Puerperal Morbidity and Mortality. P. B. Bland, Philadelphia.—p. 135. (Concluded.)
Lumbar Puncture Headache. T. J. Heldt, Detroit.—p. 136.
*Uterine Spasm Caused by Orris Root. E. M. Robinson, New York.—p. 139.
Eponyms of Medical Electricity. H. Goodman, New York.—p. 140.
Problems in Prostatic Surgery. H. G. Bugbee, New York.—p. 143.
Suppurative Orchitis. M. F. Campbell, New York.—p. 147.
Vaginalitis. J. A. Lopez, New York.—p. 151.
Hemostatic Bag for Use After Prostatectomy. C. C. Higgins, Cleveland.—p. 154.
Infections of Urinary Tract: Prostatic Lesions. W. S. Pugh, New York.—p. 155.
Kidneys. J. W. Shuman, Los Angeles.—p. 157.
Thoracic Empyema Treated by Intrapleural Injections of Optochine, with Recovery. S. R. Frank, Philadelphia.—p. 159.
Meningococcic Meningitis: Two Cases. A. E. Smith, Philadelphia.—p. 161.
A New York Medical Martyr (William Barber): A Century Ago. R. Williams, Toronto.—p. 163.
Philosophy of Medicine in Antiquity. C. G. Cumston, Geneva, Switzerland.—p. 164. (Concluded.)

Uterine Spasm Caused by Orris Root.—Robinson reports the case of a woman who had suffered from perennial rhinitis for the past six years. As this condition in a good many of the cases, especially in female patients, is caused by orris root, Robinson decided to begin to desensitize her at once for orris root, in the hope of relieving her condition as soon as possible. She received an initial injection of 2 minims (0.12 cc.) of a 1:10,000 dilution of orris root extract, and went home. In about half an hour she began to feel bad, and then became worse, being dizzy, feeling generally weak and having excruciating pain in the lower abdomen and back, resembling labor pains, only that in labor the pains come and go, and these pains were constant. The pains lasted about three quarters of an hour and then completely disappeared. The symptoms of rhinitis also disappeared. A second injection was followed in five minutes by severe pains in the lower part of the abdomen, weakness and vertigo. The uterus had the hardness of a billiard ball and was very tender to the touch. She was given 0.5 cc. of epinephrine hypodermically, and in five minutes the pain and other symptoms had disappeared entirely. Robinson then went back to 1 minim (0.06 cc.) of a 1:1,000 solution and kept increasing the amount gradually until she received 3½ minims (0.21 cc.) of a 1:500 solution. She again commenced to have labor pains (as she called them). This time, however, she also had a real attack of asthma, dyspnea and musical râles all over the chest; 0.5 cc. of epinephrine relieved her in a short time. As the rhinitis was completely relieved, Robinson decided not to go any higher than 3 minims of a 1:500 solution, giving her an injection once a week for about eight weeks, when she was discharged.

New Jersey M. Society Journal, Orange

26: 1-92 (Jan.) 1929

Physicians' Record System Conducive to Greater Efficiency. A. E. Parsonnet, Newark.—p. 1.
Classification of Minor Neuroses and Psychoses. S. F. Gorson, Atlantic City.—p. 5.
Etiology of Minor and Major Neuroses. C. F. Becker, Camden.—p. 7.
Pathology of Minor Neuroses and Psychoses. T. B. Christian, Greystone Park.—p. 10.
Symptomatology, Prognosis and Treatment of Minor Neuroses and Psychoses, W. H. Hicks, Newark.—p. 17.
What is the Matter With Tonsil Operation? F. F. C. Demarest, Passaic.—p. 23.
Method for Control of Hemorrhage Following Tonsillectomy. H. R. North, Trenton.—p. 24.
Endothermic Tonsillectomy. J. Blumberg, Elizabeth.—p. 26.
Treatment of Anemia in Infancy and Childhood. J. O. McDonald, Trenton.—p. 35.
Simplified Infant Feeding in Health and Disease. C. P. Lummis, Bridgeton.—p. 38.

New England J. Medicine, Boston

200: 263-312 (Feb. 7) 1929

Nursing Problem. C. E. A. Winslow, New Haven, Conn.—p. 267.
Education and Service of Nurse. J. S. Stone, Boston.—p. 271.
Postoperative Treatment. D. W. Parker, Manchester, N. H.—p. 278.
Industrial Surgery. M. H. Towle, Manchester, N. H.—p. 282.
Uteroplacental Apoplexy: Case. R. J. Heffernan, Boston.—p. 286.
Early Teaching of Medical History in the United States. W. P. Coues, Brookline, Mass.—p. 287.

Ohio State M. Journal, Columbus

25: 98-168 (Feb. 1) 1929

Psychoses Associated with Thyroid Disease. C. W. Stone, Cleveland.—p. 101.
Surgery of Gastric and Duodenal Ulcer. N. W. Gillette, Toledo.—p. 103.
Significance of Pruritus in Relation to Disease. H. N. Cole, Cleveland.—p. 106.
Ten Years' Experience with Gynoplastic Repair of Old Lacerations During Lying-In Period: 1,019 Cases. J. L. Bubis, Cleveland.—p. 109.
Tonsillectomy: Modified and Original Technic. H. V. Dutrow, Dayton.—p. 112.
Suggested Changes in Ohio Occupational Disease Compensation Laws and Procedures. C. P. McCord, Cincinnati.—p. 116.
Social Insurance Abroad and Attitude of French Medical Profession. Translation by L. L. Bigelow, Columbus.—p. 120.
Periodic Health Examinations. V. C. Rowland, Cleveland.—p. 121.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

51: 427-539 (Dec.) 1928

Head Injuries. D. Armour.—p. 427.
Histopathologic Changes Following Malarial Treatment of General Paralysis. R. B. Wilson, Atlanta, Ga.—p. 440.
*Increased Intracranial Pressure. J. S. B. Stopford.—p. 485.
Electromyogram in Myasthenia Gravis. H. G. Wolff, H. Keutmann and S. Cobb.—p. 508.

Increased Intracranial Pressure in Brain Tumors.—Evidence is submitted by Stopford to show that there is rarely any primary obstruction of the aqueduct in cases of supratentorial tumor. When it does occur, it is probably always due to direct pressure on the aqueduct by the growth, as in some examples of pinealoma or occlusion by the neoplasm itself. There seems to be good reason for believing that the raised intracranial pressure associated with tumors above the tentorium is originally caused by deflection of the falx, and consequent compression of the great vein of Galen, which induces an excessive production of cerebrospinal fluid. Tumors below the tentorium may more readily obstruct the outflow of cerebrospinal fluid from the ventricular system, but in a proportion no block is present. In the latter, at least, it seems likely that the cause of the raised intracranial pressure is an elevation of the tentorium with consequent compression of the great vein of Galen. It seems likely that raised intracranial pressure associated with tumors within the cranium is more commonly due to compression of the great vein of Galen than to any other cause. While obstruction to the venous drainage from the choroid plexuses or block in the region of the aqueduct or fourth ventricle, separately or in association, probably explain the origin of the raised intracranial tension, a number of other factors must be considered. It would appear, however, that these factors are of secondary importance and lead merely to an increase in the already raised pressure.

British J. Dermat. & Syphilis, London

41: 1-44 (Jan.) 1929

*Congenital Ectodermal Defect: Hypotrichosis, Dental Aplasia. H. MacKay and A. M. Davidson.—p. 1.
*Chloride Content of Whole Blood in Eczema. N. Burgess.—p. 6.
Molluscum Contagiosum Miliare. A. Whitfield.—p. 10.
Recovery in Case of Pemphigus Foliaceus. R. C. Low.—p. 12.

Congenital Ectodermal Defect.—MacKay and Davidson report eleven cases appearing in five generations of one family in which hypotrichosis, dental aplasia, a characteristic facies, bearing a more or less close resemblance to congenital syphilis, and disturbance of the functions of taste and smell were outstanding symptoms. The glands of the skin in well marked cases are either absent or rudimentary in their development.

Chloride Content of Whole Blood in Eczema.—In a series of twenty cases of eczema of all types, including infantile eczema, as well as in ten cases of acne, pruritus and pemphigus seen by Burgess, the blood chlorides were within normal limits, and high or low values could not be correlated with any clinical type. In view of these results there would appear to be no indication for attempting to reduce the chloride content of the blood in the treatment of these diseases.

Edinburgh Medical Journal

36: 69-132 (Feb.) 1929

Borderline Between Preventive and Curative Medicine. J. Robertson. —p. 69.
Difficulties in Comparing Methods of Treatment for Lobar Pneumonia. D. M. Lyon and W. L. Lamb.—p. 79.
*Colloidal Gold and Colloidal Gum Benzoin Tests in Cerebrospinal Fluid: II. Comparison of 500 Fluids. W. O. Kermack and C. I. B. Voge. —p. 94.
*Sudden Death Due to Occlusion of Larynx by Two Ascarides Lumbricoides. M. B. D. Dixey.—p. 111.

Colloidal Gold and Gum Benzoin Tests in Cerebrospinal Fluid.—Five hundred samples of cerebrospinal fluid have been examined by Kermack and Voge by the colloidal gold and gum benzoin tests. In only a few cases is there any real discrepancy between the results of the two tests. For routine laboratory work, the gum benzoin test is said to possess advantages from a practical point of view.

Sudden Death Due to Occlusion of Larynx by Ascaris Lumbricoides.—Dixey relates the case of a girl, aged 8½ years, who suddenly fell forward on her face, gasping for breath, and unconscious. She died in less than three minutes. Froth was present in the nose and mouth, and the conjunctivae were congested. At necropsy the thoracic and abdominal viscera appeared to be congested. When the removal of the tongue and larynx was begun, two large *Ascaris lumbricoides* worms were seen to be protruding from the larynx; on closer inspection one was seen to be partially curled up in the larynx, and between them the whole of the larynx was occluded, completely preventing respiration. When the stomach was opened another ascarid was found, and two more were present in the small intestine.

Journal of Oriental Medicine, Dairen

10: 1-19 (Jan.) 1929

Child Dysentery in Manchuria: Bacillus Types and Blood Findings. M. Hoshi.—p. 1.
Studies on Relation Between Dispositional Difference of Animals Susceptible to Infection by Tubercle Bacilli and Phagocytosis of Blood. S. Shibuya.—p. 10.
Cystoradiography, with Special Reference to Renal Tuberculosis. I. Ogata.—p. 13.
*Use of Trypaflavine in Rheumatism: Effect on Phagocytosis. E. Norioka. —p. 17.
Splenomegaly in Banti's Symptom Complex. T. Itoh.—p. 19.

Use of Acriflavine in Rheumatism.—Norioka injected 1 cc. of a 2 per cent solution of acriflavine hydrochloride intravenously in thirty-three cases of rheumatism. A cure was effected in twenty-three patients, and five were relieved of pain. No result was noted in five cases. Usually two injections gave relief from pain. Experiments on guinea-pigs showed that these injections stimulated phagocytosis. No untoward effects were noted in any case.

Journal of Tropical Medicine & Hygiene, London

32: 33-44 (Feb. 1) 1929

*Tellurium Therapy in Leprosy. R. Stanziale.—p. 33.

Tellurium Therapy in Leprosy.—Stanziale has used several preparations, namely, metallic tellurium at 10 per cent in dextrose suspension at 5 per cent; tellurium biiodide in oily suspension at 10 per cent, and tellurium quinine iodide also in oily suspension at 5 per cent. Of five patients treated, four were suffering from anesthetic tubercular leprosy and the other had macular leprosy. The injections were given in the gluteal region, a varied quantity of the drug (from 1 to 2 cc.) being used every five to eight days, according to the local or general reaction, with a maximum total of ten injections. The local reaction was always marked and was more intense with the metallic tellurium. The general reaction was moderate, there being usually a slight febrile reaction which gradually disappeared. In cases of tubercular leprosy, appreciable changes have been obtained in the tubercles and ulcerative forms by the tellurium treatment. These are shown by a flattening of the tubercles and of the nodules, and above all by the modification in their consistency, which from hard elastic becomes soft, with a shrinking of the skin. This sometimes occurs a few days after the beginning of treatment; at other times it occurs after treatment has ceased. The ulcerative forms also seem to respond well to treatment, showing a tendency to heal, and sometimes reaching cicatrization. New sites of ulceration may appear during treatment or even a recurrence of the old ones, but if treatment is continued there will soon be a tendency on the part of the ulcerations to heal. No results were obtained in the case of macular leprosy. In all the cases treated there was no immediate change in the serologic reactions. The treatment did not have a harmful effect on the kidneys.

Lancet, London

1: 217-270 (Feb. 2) 1929

*Lysozyme: Bacteriolytic Ferment Found Normally in Tissues and Secretions. A. Fleming.—p. 217.
*Acute Meningo-Encephalomyelitis of Childhood. W. R. Brain and D. Hunter.—p. 221.
*Pemphigus Neonatorum. F. G. Collins and H. Campbell.—p. 227.
Cerebral Hemorrhage in Healthy Child Due to Trauma. G. H. R. Holden and H. S. Le Marquand.—p. 229.
Malignant Endocarditis of Tricuspid Valve Associated with Daily Rigors. A. J. S. Pinchin and H. V. Morlock.—p. 230.

Lysozyme Found Normally in Tissues and Secretions.—Lysozyme is a word used by Fleming to denote a ferment-like substance which has the power of killing and dissolving bacteria, and which is widely distributed throughout the body. He says that it is found in most of the secretions and all the tissues of man, and is present in the tissues of other animals and in some vegetables. Although it can be shown to have some destructive effect on many pathogenic bacteria, its extraordinary bacteriolytic effect is most easily shown on nonpathogenic bacteria, although even among these there are great differences in sensitiveness. Fleming succeeded in isolating a coccus which is remarkably sensitive to the action of lysozyme, and he has used it largely in investigating the properties of the ferment. Because it is easily dissolved he has called this microbe *Micrococcus lysodeikticus*. When the concentration of lysozyme is great, as in tears of the white of egg, solution of this coccus is extremely rapid. The fact that lysozyme acts well on dead bacteria in an old culture is in striking contrast to the action of a bacteriophage, which shows only a lytic effect on young, rapidly growing cultures. A great variety of tissues and secretions and excretions have been tested by Fleming with *M. lysodeikticus* and other organisms to see whether they contain this lytic principle. The lytic principle was present in all the human tissues examined and in most of the secretions, except normal urine, sweat and cerebrospinal fluid. The concentration however, varies greatly. Of all the tissues, cartilage had the strongest concentration, and an extract of cartilage corresponding to 1 part in 1,300 parts of physiologic solution of sodium chloride was capable of causing complete lysis of the test cocci in five minutes. On the other hand, the lytic action of brain tissue was very weak. The great concentration of lysozyme in tears is said to be very striking. Lysozyme exists also in very considerable concentration in leukocytes. The lysozyme content in the rabbit and the guinea-pig was very much less than in man. The tissues of the dog stood midway between. The lysozyme concentration is greatest in the white of a hen's egg, and the author has found that a dilution as low as 1 in 60,000,000 has some lytic effect on the coccus. The yolk had no lytic action. The tissues of a pike were found to contain much lysozyme, and its cartilage seemed to be quite as potent as that of man. The eggs of this fish were also found to be very powerful. The tears of the rabbit, horse, sheep and turkey were all thirty or more times less potent than those of man in their action on *M. lysodeikticus*. Among the common garden vegetables tested, the turnip showed the greatest content in lysozyme, but even this was very weak when compared with human tissues.

Acute Meningo-Encephalomyelitis of Childhood.—Brain and Hunter report six cases which appear to show that a clinical picture similar to that of encephalitis following vaccination, measles and other specific fevers may occur in the absence

of any recognizable predisposing cause. A scientific classification of these forms of encephalomyelitis has not yet been made.

Pemphigus Neonatorum.—After reviewing fifty cases Collins and Campbell conclude that pemphigus neonatorum is a contagious disease rarely seen later than four weeks after birth. The infection is probably conveyed from one infant to another through the agency of the physician, midwife, or other attendant. There are two distinct types of the disease: (*a*) a mild type, causing little general disturbance; (*b*) a severe type, which tends to end fatally. The first appearance of the rash is most often on the groins. The disease seems to attack healthy infants, but shows a predilection for those born and living under unhealthful conditions of space, light and air. The specific organism has not been isolated, but the presence of the staphylococcus in the blister fluid has been demonstrated in a majority of the cases. A mixed infection may supervene and cause death. The best form of treatment is to keep the affected area dry and aseptic; no moist preparations should be used. Any midwife or physician who has been in contact with the disease should not attend another confinement until thorough disinfection of both person and belongings has been carried out. The disease should be made notifiable and, when necessary, mother and infant should be isolated.

1: 271-320 (Feb. 9) 1929

Local Anesthesia in Upper Abdominal Surgery. C. A. Pannett.—p. 271.
*Blood Platelets in Splenic Anemia: Treatment by Splenectomy. W. H. Evans.—p. 277.
Hypertrophy of Distal Portion of Ileum: Twenty-Eight Cases. R. MacKinlay.—p. 282.
*Cretinism, Diabetes and Pregnancy. L. J. Witts.—p. 284.
*Series of Monsters. E. J. Parry.—p. 286.

Blood Platelets in Splenic Anemia.—Evans concludes that the hemorrhagic tendency in splenic anemia may be due to two factors: (*a*) a mechanical factor probably related to venous stasis associated with splenic and portal thrombophlebitis (hematemesis), which is not necessarily associated with thrombocytopenia, or (*b*) an associated general hemorrhagic tendency, which may be correlated with a deficiency of platelets. Such patients appear to be good operative risks, and the prospects of permanent relief by splenectomy seem good. Thrombosis of the splenic veins and portal vein is of frequent occurrence. It is possible in some cases that the venous thrombosis is the primary event (Eppinger's thrombophlebitic type), but differential diagnosis during life seems impossible. Thrombosis, both in the portal system and in peripheral sites, may occur as a postoperative complication, and may be correlated with a gross and persistent increase in the platelets after splenectomy. In some patients not operated on "platelet crises" may occur (Rosenthal) and possibly may be correlated with splenic and portal thrombosis. It appears that, in the majority of patients exhibiting this thrombotic tendency, the platelets before splenectomy are usually normal or elevated. In these patients there appears to be considerable risk, after splenectomy, of thrombosis, which may be fatal. One cannot therefore recommend splenectomy with the same confidence as in those cases which present thrombocytopenia associated with evidence of subjective and objective hemorrhagic tendency.

Cretinism, Diabetes and Pregnancy Combined.—Witts reports two cases of hypothyroidism in mother and daughter, and the association of cretinism, diabetes and pregnancy in the daughter.

Series of Monsters in One Family.—Parry relates the case of a woman, aged 37, who was confined in August, 1925; the child was stillborn, an anencephalic monster with a spina bifida. She was confined again in July, 1926. This was a difficult labor and the fetal skull had to be perforated. The fetus had a marked hydrocephalus with a harelip and cleft palate. At the last confinement in July, 1927, she had twins; one was mummified, about 1 pound in weight, and born in thick greenish fluid surrounded by the membranes. The other baby (a girl) appeared perfectly normal, but it was premature and weighed only 3½ pounds. It developed normally. Before her marriage this woman had had four illegitimate children, all of whom were perfectly healthy. These were the only three children by the husband. In each pregnancy during the last two months she showed marked signs of toxemia, edema of the legs and albuminuria. The father's blood gave a negative Wassermann reaction.

Annales de Médecine, Paris

24: 473-576 (Dec.) 1928

Diphtheria in Infancy. L. Ribadeau-Dumas and Chabrun.—p. 473.
Cardiorenal Syndrome in Hypothyroidism. P. Sainton, E. Doumer and P. Véran.—p. 513.
*Effect of Juice of Vegetables on Gastric Secretion. W. Orlowski.—p. 523.

Effect of Juice of Vegetables on Gastric Secretion.—For his experiments on men (and dogs) Orlowski used the fresh juice of raw vegetables (cabbage, potatoes, beets, cauliflower) in which the total acidity, the nitrogen content and the absence of free hydrochloric acid had previously been determined. Of the eighty-one men selected for the experiment, twenty had a normal gastric secretion, twenty-eight had hyperacidity, twenty had hypo-acidity and thirteen had anachlorhydria (all disturbances of gastric secretion being of functional origin). Each of the men received 200 cc. of juice through a stomach tube to avoid any psychic secretory reflexes; the tube was left in the stomach, and the stomach content was withdrawn by aspiration through the tube at certain intervals and examined in the laboratory. The results were, in general, similar in all cases, and were compared with the results of the examination of gastric secretion after the administration of the Boas-Ewald test meal or of a solution of meat extract. The juice of vegetables was found to be a powerful stimulant of gastric secretion, much more so than bread or meat, with the exception of the secretion of pepsin. In some cases it was of normal amount, in others, less than after the meat meals. These results may be of practical value, the author thinks, in the dietetic treatment by vegetables of patients with hypochlorhydria, anachlorhydria and anorexias, and in the limitation of vegetables in the diet of patients with hyperacidity.

Archives Franco-Belges de Chirurgie, Brussels

30: 741-828 (Sept.) 1927

*Surgical Treatment of Tumors of Spinal Cord. Y. Delagenière.—p. 741.
Importance of Roentgenologic Examination of Tumors of Hypophysis. E. de Fine Licht.—p. 771.
Statistics of Spinal Anesthesia. J. Cahen.—p. 788.
*Review of 6,147 Cases of Spinal Anesthesia. Brun.—p. 792.
Grave Accidents in Spinal Anesthesia. J. Moreau.—p. 796.

Surgical Treatment of Tumors of the Spinal Cord.—Delagenière describes the technic he used in fifty-three operations for tumors of the spinal cord and the preoperative and postoperative care of the patients, reviewing the results of the operations. The total mortality was 7.4 per cent, the cure, 75 per cent. In patients operated on before the development of paraplegia, the mortality was 0 and a complete cure was the rule.

Review of 6,147 Cases of Spinal Anesthesia.—Brun used spinal anesthesia in 6,147 patients, from 15 to 85 years of age, and in any sort of general condition. He reports only three deaths: two in old men and one in a child with gangrene of the leg. In fifteen cases it was necessary to resort to artificial respiration. Such complications as paresis or paraplegia or paralysis of the ocular muscles were never observed, but there were observed eight cases of vertigo, one case of an epileptiform attack, 111 cases of vomiting and nausea within twenty minutes after the beginning of spinal anesthesia, and 106 cases of incomplete anesthesia. Only in 212 cases was it necessary to resort to general anesthesia. Because in the same hospital there were seven deaths in 3,700 ether anesthesias, and two deaths in 6,070 ethyl chloride anesthesias, the author comes to the conclusion that spinal anesthesia is not more dangerous than general anesthesia.

Archives de Médecine des Enfants, Paris

32: 1-64 (Jan.) 1929

Dengue in Children During Epidemic of 1927-1928 in Athens. S. Veras.—p. 5.
Bilateral Empyema Cured by Bilateral Thoracoplasty. L. Tixier and S. de Sèze.—p. 20.
*Congenital and Familial Adiposogenital Dystrophia (Fröhlich) Combined with Polydactyly and Retinitis Pigmentosa. A. Ricaldoni and A. Isola.—p. 27.

Congenital and Familial Adiposogenital Dystrophia with Polydactyly and Retinitis Pigmentosa.—Ricaldoni and Isola observed this syndrome in four children (two boys and two girls) of the same family. The parents were blood related but normally developed and healthy. The authors think

that the coexistence of adiposogenital dystrophia and such developmental disturbances as polydactyly and retinitis pigmentosa allows one to divide all adiposogenital dystrophia into two groups: one of embryonic origin, and the other of accidental origin due to irritation or compression of the base of the brain in the region of the sella turcica, the last group characterized by the absence of any developmental disturbances.

Bulletin de la Soc. d'Obst. et de Gynéc., Paris

17: 893-963 (Dec.) 1928. Partial Index

Metritis and Salpingitis in the New-Born. Aburel.—p. 901.
Delivery Under Spinal Anesthesia in Dystocia. M. Metzger.—p. 911.
Normal Evolution of Pregnancy, Occurring Three Months After a Cesarean Section with Temporary Exteriorization of Uterus. V. Cathala.—p. 915.
Gastric Ulcer in the New-Born. Schwaab and Lebourlier.—p. 923.
*Treatment of Adnexitis and Periadnexitis by Electrolysis of Radioactive Mud Applied in the Vagina. J. Iribarne.—p. 924.
Diagnostic and Therapeutic Value of Salpingography in Sterility. J. Iribarne.—p. 928.

Treatment of Adnexitis and Periadnexitis by Electrolysis of Radioactive Mud Applied in Vagina.—Iribarne used this treatment in fifty-eight cases of subacute and chronic puerperal or gonorrheal adnexitis and periadnexitis. The radioactive muds are rich in alpha rays and cheap; therefore the treatment is accessible to all patients. In all cases the author observed a rapid disappearance of pains and dysmenorrhea, resorption of exudates and mobilization of the adnexa, together with reduction of the volume of the adnexa and decongestion of the cervix. In most cases from five to six treatments were necessary for a complete cure or a considerable amelioration. The cure was complete and lasting in all patients with the exception of those with gonorrheal cervicitis. However, in these cases, though the cure was not lasting, the severity of the recurrent symptoms was considerably lessened. The author attributes the good results of the treatment to the stimulation of the local defensive reactions of the organism.

Journal de Médecine de Lyon, Lyons

10: 37-70 (Jan. 20) 1929

Nodular and Diffuse Cellulitis (or Cellulalgias). J. Paviot and P. Lagèze.—p. 37.
Relation Between Sciatica and Cellulitis (Cellulalgia). J. Paviot, J. F. Martin, J. Dechaume and P. Lagèze.—p. 53.
*Localized Premalleolar Cellulitis ("Boule Prémalléolaire"). L. Duvernay.—p. 63.

Limited Premalleolar Cellulitis ("Boule Prémalléolaire").—Duvernay describes a peculiar form of limited cellulitis that is observed only in women and especially in those with a gouty diathesis or with some degree of hepatic insufficiency. It occurs in the form of a limited symmetrical swelling on the anterior aspect of both external malleoli, sometimes extending to the retromalleolar region, varying in size between a nut and a hen's egg, painless, and not interfering with the movements of the feet. On palpation it gives the impression of a lipoma. It has a tendency to increase during exercise and to decrease at rest. After death it disappears completely. A pathologico-anatomic examination of such a swelling excised during operation showed a simple proliferation of the connective tissue, without any inflammatory reaction. The author thinks that it is due to the modification of the arch of the foot and to the chronic traumatism of the malleoli caused by the wearing of high-heeled shoes. The treatment consists in the wearing of shoes with broad low heels, massage and local compression with a rubber bandage.

Journal d'Urologie Médicale et Chirurgicale, Paris

26: 505-600 (Dec.) 1928

Close Relations Between Nervous System and Sexual Organs. É. Retterer.—p. 505.
Phenolphthalein Test in Experimental Tuberculosis of Single Kidney (in Rabbits). F. de Rom.—p. 521.
*Pathogenesis and Treatment of Varicocele: New Operative Technic. L. A. Surraco.—p. 527.

Pathogenesis and Treatment of Varicocele: New Operative Technic.—Surraco attributes the most important part in the pathogenesis and evolution of varicocele to the fibromuscular sheath of the spermatic cord, which by its rigidity may interfere with the venous circulation of the cord. Therefore, one of the steps in his operation for varicocele is the excision of this fibromuscular sheath of the cord. He advises the most conservative surgical treatment of the varicocele, without ligation or resection of any part of the venous plexus of the cord. He makes a skin incision immediately outside the rectus muscle, extending it four fingerwidths above the external inguinal orifice and two fingerwidths below it on the scrotum. The aponeurosis is cut in the same length and almost in the same direction, but about 4 cm. farther toward the outside, and through the most external part of the external inguinal orifice. It is separated from the underlying muscles by dissection for 4 cm. outward and to the sheath of the rectus muscle inward, two aponeurotic flaps thus being prepared. The fibrous sheath of the cord is dissected and excised as far as possible. The venous plexus of the cord is usually easily separated into two parts: the anterior, or larger one, including all the varicose veins, and the posterior, or smaller one, usually without any varices. Neither ligation nor resection of the veins is being made. The smaller, not varicosed part of the venous plexus, together with the vas deferens and deferential and spermatic arteries, is placed behind the conjoined tendon of the internal oblique and transversalis muscles, and the conjoined tendon is sutured over it to Poupart's ligament (as in the operation for inguinal hernia). The anterior varicose part of the venous plexus is raised in a loop to the abdominal wall, as high up as may be necessary in each individual case. The ascending part of this loop is placed on the internal oblique muscle under the internal previously prepared flap of abdominal aponeurosis, and this aponeurotic flap is sutured over it to the internal oblique and transverse muscles; the external flap is sutured over this, thus reinforcing the anterior wall of the new canal created for the ascending part of the loop of the varicose veins of the spermatic cord, the posterior wall of it being formed by internal oblique and transverse muscles. The skin is sutured over the descending part of this loop, which descends to the scrotum through the subcutaneous tissue of the abdominal wall.

Paris Médical

1: 53-84 (Jan. 19) 1929

Review of Dermatology in 1929. G. Milian and L. Brodier.—p. 53.
Lingual and Oral Urticaria. H. Gougerot.—p. 60.
*Treatment of Lupus Erythematosus with Bismuth. J. Nicolas, J. Lacassagne and J. Rousset.—p. 62.
Syndrome of Sensibilization in Eczema. H. Jausion and P. Cot.—p. 67.
Relationship Between Contagious Herpes Zoster and Chickenpox. M. Michaud.—p. 72.
*Treatment of Herpes Zoster with Neoarsphenamine. G. Milian.—p. 74.
Treatment of Pyodermia. F. Lotte.—p. 77.
Treatment of Parakeratosis, Eczematoids and Seborrheids. Veyrières.—p. 81.

Treatment of Lupus Erythematosus with Bismuth.—Nicolas et al. report seventeen cases of lupus erythematosus cured by intramuscular injections of bismuth hydroxide. The treatment was well tolerated and rapidly curative. Subjective symptoms (itching, burning) disappeared after a second injection; after two more injections the scales and redness began to disappear, and after from eight to fifteen injections the skin became normal. There were observed only three recurrences, in a considerably attenuated form, and rapidly cured by a few more injections. The authors think that this treatment of lupus erythematosus is far superior to any other treatment, including the use of arsphenamines.

Treatment of Herpes Zoster with Neoarsphenamine.—Milian reports five cases and mentions three more cases of herpes zoster in which he observed a complete disappearance of severe pains in from three to four hours after a hypodermic injection of neoarsphenamine. The disappearance of the eruption followed in a few days. A second injection was only seldom necessary. Only in one case was there exaggeration of all symptoms after the first injection, followed by a rapid cure after a larger dose of neoarsphenamine. Only one of the patients had syphilis; thus the effect of the treatment did not imply the syphilitic origin of herpes zoster. But the author thinks that the therapeutic effect of neoarsphenamine, similar in syphilis, malaria and herpes zoster, suggests the possibility that the as yet unknown pathogenic micro-organism of herpes zoster may be of the class of either spirocheta (as in syphilis) or protozoa (as in malaria).

Presse Médicale, Paris

37: 65-88 (Jan. 16) 1929

Relation Between Food Supply and Nutrition. H. Roger.—p. 65.
*Effect of Spinal Anesthesia on Intestinal Motility. F. Domenech.—p. 66.
Stimulation and Regulation of Respiration by Carbon Dioxide. J. Mouzon. —p. 68.

Effect of Spinal Anesthesia on Intestinal Motility.—Domenech observed an increase of intestinal peristalsis during spinal anesthesia in dogs. Not only were the intestinal contractions more frequent, but their intensity and duration were increased both in healthy and in inflamed intestines. This was due to the blocking by the anesthetic of the afferent fibers of the greater splanchnic nerve, thus suppressing its inhibitory action on intestinal peristalsis. The administration of atropine or chloroform not only neutralized the effect of the spinal anesthesia but produced a complete paralysis of the intestines by paralyzing the terminal intestinal ramifications of the vagus.

37: 89-104 (Jan. 19) 1929

Diagnosis of Various Kinds of Azotemic Nephritis. L. Blum, van Caulaert and P. Grabar.—p. 90.
*Diathermic Treatment of Right Pericolitis. Gaston-Durand and L. Delherm.—p. 93.

Diathermic Treatment of Right Pericolitis.—Gaston-Durand and Delherm used diathermy for the treatment of twenty-one patients with right pericolitis, all complaining of constipation and of more or less severe pains in the right side of the abdomen. Four of the twenty-one patients had already been operated on for chronic appendicitis, but without any effect. After from twenty-six to sixty-eight diathermic treatments, ten of the patients were either markedly improved or remained cured for a long time (one for three years) after the diathermic treatment was discontinued. The authors ascribe the effect of the diathermy to the amelioration of the intra-intestinal and extra-intestinal congestion and edema that produced a compression of both motor and sensory nerves. Therefore, it should not be used alone but should be combined with rest, an adequate regimen, autovaccinotherapy and sedative medication.

37: 105-120 (Jan. 23) 1929

*Use of Caffeine for Resuscitation of a Patient During Spinal Anesthesia. R. Bloch.—p. 108.
Diagnostic Value of Increase of Pituitary Hormone in the Blood Serum of Pregnant Women. P. E. Morhardt.—p. 108.

Use of Caffeine for Resuscitation of a Patient During Spinal Anesthesia.—Bloch used an injection of caffeine into the spinal subarachnoid space for resuscitation of a patient who had a respiratory and cardiac failure during spinal anesthesia. The pulse and the respiration reappeared immediately after the injection of caffeine, whereas the previous intracardiac injection of epinephrine and a few minutes of artificial respiration proved to be of no avail.

37: 137-152 (Jan. 30) 1929

*Increase of Sensitiveness to Tuberculin in Old People After Injection of B C G. J. Troisier, S. Develay and J. Weiss-Roudinesco.—p. 137.
*Oral Administration of Vaccines in Treatment of Colitis. Gaehlinger and A. Bécart.—p. 138.

Increase of Sensitiveness to Tuberculin in Old People After Injection of B C G.—Troisier et al. obtained a positive tuberculin reaction in only 59.3 per cent of old men, aged 80. To decide whether this was due to the absence of infection or to the senility and thus to the incapacity of the organism to produce corresponding antibodies, 0.02 mg. of B C G was administered subcutaneously to ten octogenarians who had a negative Pirquet reaction. Four months after the injection of B C G all of them had a positive tuberculin reaction. This might be considered as a proof of the possibility that those who had a negative tuberculin reaction before the injection of B C G were not infected with tuberculosis. Therefore, and moreover because tuberculosis was observed to begin in persons aged more than 60 years, the authors advocate preventive vaccination with B C G in all adults and even in old people.

Oral Administration of Vaccines in the Treatment of Colitis.—Gaehlinger and Bécart used old (not less than from fifteen to twenty days) autovaccines administered by mouth for the modification of the intestinal flora in chronic colitis. Though they usually obtained rapidly good results, they think that this kind of treatment should not be used alone but combined with appropriate regimen, both dietetic and medicinal, and the elimination of possible intestinal parasites and all reinfection from possible sinusitis, dental caries, chronic appendicitis and especially an infected gallbladder.

37: 153-168 (Feb. 2) 1929

*Effect of Tuberculosis on Evolution of Diabetes Mellitus. M. Labbé, R. Boulin and Justin-Besançon.—p. 154.
*Relation Between Renal Function and Suprarenal Glands. J. J. Mozer. —p. 156.

Effect of Tuberculosis on Evolution of Diabetes Mellitus.—Labbé et al. consider tuberculosis as an aggravating factor in the evolution of diabetes mellitus. In five cases of diabetes mellitus reported by them, they observed a sudden increase of glycosuria and acetonuria (with coma in two cases) and a considerable lowering of carbohydrate tolerance, corresponding to the beginning of pulmonary tuberculosis. In two of these cases a sudden exacerbation of the same symptoms was observed during an intercurrent infection (abscess and empyema). The authors think that tuberculous infection, like any other infection, is liable to cause disturbances of glycoregulation and thus influence unfavorably the evolution of diabetes mellitus.

Relation Between Renal Function and Suprarenal Glands.—Mozer reports three cases of Addison's disease with azotemia. The nitrogen metabolism was not increased; the amount of urine and the urinalysis were normal, with the exception of a decreased amount of urea. In two cases the kidneys were found normal at necropsy; in the third case there were some renal lesions, but not sufficient to explain the retention of nitrogen. There was present an advanced tuberculosis of the suprarenal glands. The author thinks that the azotemia in these cases was caused by the suppression of the stimulating action of the suprarenal glands on renal function.

Revue Française d'Endocrinologie, Paris

6: 427-514 (Dec.) 1928

Combination of Exophthalmic Goiter, Vitiligo and Paroxysmal Tachycardia. G. Etienne and Bequain.—p. 427.
Treatment of Diabetes Insipidus by Nasal Administration of Powdered Hypophysis. A. and L. Choay.—p. 434.
*Influence of Insulin on Endocrine System. Schereschewsky and Moguilnitzky.—p. 456.

Influence of Insulin on the Endocrine System.—Schereschewsky and Moguilnitzky repeatedly injected large doses of insulin (Kahlbaum) under the skin of six guinea-pigs. Some animals died after they had received 200 units of insulin, the others, after the administration of 600 and even of 1,000 units. The anatomicopathologic examination of the endocrine glands showed the most important lesions in the suprarenals: their size was increased considerably in comparison with the control animals; there was edema and congestion, with numerous hemorrhagic areas in both cortex and medulla and a pronounced cellular degeneration and necrobiosis, with considerable reduction of lipoids. In the pancreas, thyroid and thymus there was only congestion without any lesions of cells.

Schweizerische medizinische Wochenschrift, Basel

59: 25-48 (Jan. 12) 1929

*Prognosis in Syphilis. M. Tièche.—p. 25.
*Fatal Complications in Tonsillitis. E. Schlittler.—p. 29.
Kidney Diseases. F. Lebermann.—p. 32.
Pathogenesis of Backaches. M. Dubois.—p. 36.
*Staining of Tubercle Bacilli. Kast.—p. 42.

Prognosis in Syphilis from the Point of View of Antisyphilitic Treatment.—To determine the value of the different methods Tièche compared the patients who received treatment with those that received no antisyphilitic treatment. He regards mercury as being mostly a palliative agent. Good results which were seemingly effected by it were generally self cures. Concerning arsphenamine therapy, he feels that it has been overvalued. In some types of syphilis it seems to have no effect. His own observations proved that the prospects of cure are best if the disease is still in the primary stage. He is of the opinion that, if it is possible to commence the treatment before the Wassermann reaction becomes positive, that is, before the spirochetes spread through the whole organism, the

prognosis is favorable. Tièche and his assistants treated patients who according to the anamnesis had contracted the disease from thirty to forty days previously. A combination therapy of mercury and arsphenamine was used. Of sixty-one patients treated, sixty gave a negative Wassermann reaction from two to eleven years later. To prove that they were really cured, the author points out that the Wassermann reaction was negative, spermatozoa and blood caused no infections in animal experiments and syphilitic skin eruptions or nervous disturbances were not observed later. Patients who married neither infected their partners nor the offspring. Tièche also points out that defective antisyphilitic treatment is more dangerous than no therapy at all. He also advises against excessive treatment. Concerning bismuth therapy, he feels that it will require several years before a proper evaluation is possible.

Fatal Complications in Tonsillitis.—Schlittler states that tonsillitis is generally considered a harmless disease from which the patient recovers in from five to seven days. However, occasionally serious complications arise which frequently result in the death of the patient. The author gives a detailed description of six cases. The reports show that serious complications are usually characterized by general symptoms rather than by local ones. If chills are observed on the third day and pneumonia or pyelitis are not suspected, the patient should be sent to a hospital. Chills and fever usually indicate septic pyemia. Other dangerous complications are pleuritis and bronchitis. The author also advises that the blood be examined because leukemia or agranulocytic angina sometimes complicate tonsillitis. As the best method of treatment Schlittler advises surgical therapy. He asserts that chemotherapy and seroimmunology have not proved effective. Of twenty-eight patients with pyemia who were treated surgically fourteen recovered. In consideration of the malignity of the cases, the author regards this as a favorable result. He emphasizes that in order to assure the success of an operation, it should be made as early as possible. For persons who frequently suffer from tonsillitis, he advises prophylactic tonsillectomy.

Staining of Tubercle Bacilli.—Kast treats sputum and smears from tubercle bacilli cultures with potassium ferrocyanide before he stains them with methylene blue (methylthionine chloride, U. S. P.), thereby bringing into view bacilli that would otherwise be invisible. Transition forms can be studied to good advantage in this manner.

Pediatria, Naples

36: 1309-1338 (Dec. 15) 1928

*Edema Associated with Malaria in Children. G. Genoese and A. Zallocco. —p. 1309.

Edema Associated with Malaria in Children.—Genoese and Zallocco report eighteen cases of malaria in young children. From the observation of 300 similar cases, they conclude that edema associated with malaria in children is a very frequent symptom in the acute type and of almost constant occurrence in chronic malaria (malarial cachexia). Characteristic and seldom described in the literature are the fugacious edemas. More frequent are the edemas that occur in acute malaria with gastro-intestinal symptoms. Of less importance, since they are not dissimilar in adults, are the edemas that occur in cardiac or renal lesions induced by malarial infection, the edemas of malarial cachexia, and those associated with hydremic-malarial anemia.

Policlinico, Rome

35: 2545-2600 (Dec. 24) 1928. Practical Section

So-Called Filtrating Cholecystitis. L. Urbani.—p. 2549.
*Diuretic Action of Liver Therapy. A. Gasparini.—p. 2552.
Autohemotherapy in Treatment of Herpes Zoster. C. Scudero.—p. 2556.
Determination of Albumin and Blood in Urine Tinted with Methylthionine Chloride. P. Clara.—p. 2557.

Diuretic Action of Liver Therapy.—Gasparini reports the case of a man who presented ascites and edema of the lower limbs due to interstitial hepatitis, probably of malarial and alcoholic origin, and signs of moderate anemia. The amount of urine passed daily averaged only 600 cc. The institution of a liver diet was followed by increased diuresis. The second day 3,500 cc. was voided. The following days it ranged between 2,500 and 3,500 cc. After ten days the edema in the lower limbs and the ascites were greatly reduced. At this point, the liver diet was suspended and on the fourth day the urine output dropped to 1,000 cc. With resumption of the liver treatment, the secretion of urine again became abundant. At the end of fifteen days more, the ascites and the edema had disappeared.

35: 613-660 (Dec. 15) 1928. Surgical Section

*Relation of Trauma to Sarcoma. E. Capecchi.—p. 613.
Latent Microbism and Old War Wounds. G. Carossini.—p. 627.
Three Cases of Resection of Presacral Nerve. S. Tirelli.—p. 633.
Functional Adaptation of Hypoplastic Arteries Following Ligation After Resection of Thrombosed Portion and Suturing of Stumps. G. V. Vincelli.—p. 647.

Relation of Trauma to Sarcoma.—Capecchi's patient, a woman, aged 32, fell, Feb. 16, 1926, to the ground, striking her left leg against the edge of a chair. She felt a sharp pain in the calf. This pain lessened in severity following hot applications but did not disappear entirely. It slowly became more severe and more persistent, radiating throughout the whole leg and being worse on walking. Soon after her fall, the patient noted a large black and blue spot on her leg and a slight increase in the size of the limb. She also began to lose weight. Less than three months after her fall the thigh was amputated at the lower third by the circular method. The postoperative course was normal. The patient left the hospital after eighteen days. In a little more than a month, signs of diffuse neoplastic infiltration were observed in the lungs and mediastinum, with cough, pains in the chest and dyspnea, which soon led to the patient's death. The tumor removed was of the size of a very large lemon. It proved to be a sarcoma. The author holds that the observed facts would seem to indicate that the neoplasm developed as the result of the trauma described.

Brasil-Medico, Rio de Janeiro

42: 1419-1444 (Dec. 22) 1928. Partial Index

*Classification of Mental Diseases in Latin-American Countries. H. Roxo. —p. 1419.

Classification of Mental Diseases in Latin-American Countries.—In order to make the classification of mental diseases in Latin-American countries uniform, Roxo presents a comparative study between the Argentine classification and that made by the Brazilian Society of Psychiatry, Neurology and Legal Medicine. Both classifications may be made uniform by adopting the general points as a modification. Insanity is divided into congenital and acquired. Congenital insanity includes idiocy, and imbecility. Acquired insanity may develop in persons with normal and abnormal physique. Insanity may be either primary or secondary. To the former group belong dementia praecox, paresis and senile dementia. Psychoses caused by cerebral lesions and terminal dementia belong to the second group.

Prensa Médica Argentina, Buenos Aires

15: 921-960 (Jan. 10) 1929

Fractures of Calcaneum. J. Valls.—p. 921.
*Postencephalitic Dementia. J. C. Vivaldo and A. Haedo.—p. 936.
Lead in Treatment of Cancer. A. H. Roffo and O. Calcagno.—p. 941.

Postencephalitic Dementia.—Two years after recovery from what had been pronounced an attack of influenza, the patient of Vivaldo and Haedo presented an alarming mental picture, which was diagnosed as a form of postencephalitic insanity. The authors feel that whenever a patient exhibits mental or unusual nervous symptoms which do not conform to an established type, and if in his history a typical attack of influenza is recorded, a postencephalitic process may be suspected.

Revista Médica de Barcelona

10: 385-511 (Nov.) 1928. Partial Index

*Roentgen Treatment of Thyroidal Dysfunction. V. Carulla Riera.—p. 390.
*Disturbances of Cardiac Rhythm in Acute Articular Rheumatism. C. Cortés.—p. 420.

Effect of Roentgen Rays on Disturbances of Thyroid Function.—Carulla Riera divides patients with hyperthyroidism into three types: the basedowian, those who have thyrotoxic adenomas and, finally, the patients with essential hyperthyroidism. Patients in the last group present all the symptoms suggesting that pathogenesis without showing enlargement of the thyroid. In this group and in the basedowian

group, roentgen treatment yielded good results. The group with thyrotoxic adenoma is not so amenable to this treatment. Success depends largely on the correct diagnosis. There is no contraindication to the treatment and this is neither dangerous nor troublesome; all the salivary glands, however, must be carefully protected. All the author's patients received rest in the country. As these patients are inclined to be depressed, their environment must be optimistic.

Disturbances of Cardiac Rhythm in Acute Articular Rheumatism.—From his experience and from the case which he reports, Cortés concludes that the disturbances of rhythm which are observed in the course of acute articular rheumatism and in some other infectious diseases are caused by a more or less intense intoxication of the cardiac nervous system, either intrinsic or extrinsic. In the course of acute rheumatism any possible change in the rhythm may appear.

Revista Médica de Chile, Santiago

56: 1125-1224 (Dec.) 1928. Partial Index

*Infant Death Rate in Chile. L. Calvo Mackenna.—p. 1180.

Infant Death Rate in Chile.—Calvo Mackenna says that the birth rate in Chile is increasing slowly but steadily. During the five year period from 1922 to 1926 the rate was 39.4 per thousand. During the same period the death rate among infants under 1 year was 259.6 per thousand. In these statistics, however, the epidemic of influenza of 1923 was included. The daily changes of the weather (caused by the geographic situation of the country), the bad hygienic conditions under which the poor people live and insufficient clothing are three factors which undermine the health of the infants, diminishing their power of resistance to acute respiratory diseases. The highest death rate was caused by diseases of the respiratory tract; digestive diseases and nutritional disturbances came next. The death rate from spasmophilia and acute meningitis was also high. The infant death rate diminished from 243.8 per thousand in 1922 to 117.4 per thousand in 1926.

Siglo Médico, Madrid

75: 265-288 (Jan. 26) 1929

Lumbar Pains and Spina Bifida Occulta. M. Bastos Ansart.—p. 265.
*Slight Hyperthyroidism with Pronounced Exophthalmos. E. Piqueras and E. Torres.—p. 271.
Indications and Results of Crede's Method. J. Barriuso Pérez.—p. 273.

Slight Hyperthyroidism with Pronounced Exophthalmos.—In Piqueras and Torres' case, marked exophthalmos was the only symptom of hyperthyroidism. The patient had always been myopic, and after her last pregnancy she suddenly noticed marked protrusion of the eyeballs. There was no goiter, tremor or tachycardia and the blood pressure was normal. The pulse was irregular. The patient stated that were it not for the exophthalmos she would not make any complaint.

Archiv für Gynäkologie, Berlin

135: 271-518 (Jan. 9) 1929. Partial Index

*Inflammation of Placenta and Fetal Sepsis. F. Wohlwill and H. E. Bock.—p. 271.
Innervation of Pregnant Uterus. J. Hofbauer.—p. 320.
Extrachorionic Development of Fetus. J. Hofbauer.—p. 332.
Brow Presentation. H. O. Neumann.—p. 334.
High Position of Fetus. H. O. Neumann.—p. 366.
Prognosis of Obstetric Injuries of Child. H. Naujoks.—p. 414.
Tuberculosis and Pregnancy. M. Beckman and A. Kirch.—p. 438.
Potassium-Calcium Ratio in Blood in Normal Pregnancy. R. Spiegler and W. Schol.—p. 461.
Objective Symptoms in Eight Months Pregnancy. B. A. Libow.—p. 467.
Hormone Regulating Spontaneous Contractions of Uterus. I. Vögel and N. Margolina.—p. 478.
*Carcinoma of Theca Interna of Lutein Cyst. J. Wallart.—p. 485.
Congenital Abdominal Fissures. H. O. Kleine.—p. 495.

Inflammation of Placenta and Fetal Sepsis.—Wohlwill and Bock report four cases of abortion in the fifth month which presented an infection of the placenta that had been caused by fetal sepsis; in two cases the mothers also showed sepsis. According to the authors, placentitis may originate either in the mother or in the fetus. In the reported cases the infection was a metastasis of the fetal sepsis. At the fourth and fifth months the fetal organism does not seem to be able to resist infection. When the fetus dies, therapeutic abortion is indicated in all cases, because the placenta and the fetus are then a focus of infection for the mother. In some cases the uterus had to be extirpated.

Carcinoma of Theca Interna of a Lutein Cyst.—Wallart reports an unusual case in which a malignant tumor developed in a lutein cyst. Three years after giving birth to a healthy child, a woman, aged 45, was operated on for chronic appendicitis; the operation revealed an endocrine tumor of the theca interna, corresponding in structure and substance to the type of a carcinoma, and called carcinoma of the theca interna. The removed ovary and part of the right tube were studied microscopically, by means of Masson's staining method. Between the small corpuscles with dark nucleus, resembling granulosa cells, and the lighter cells of the theca interna, he found all transitional formations. He concludes that the endocrine elements in the theca interna are of the same origin as the granulosa cells which form the greater part of the corpus luteum.

Beiträge zur klinischen Chirurgie, Berlin

144: 505-700 (Nov. 2) 1928

Retroperitoneal Pararenal Cyst Originating in Wolffian Body. A. Läwen and M. Biebl.—p. 505.
Surgical Treatment of Brain Tumors. F. Kerschner.—p. 519. C'cn.
Histology and Histogenesis of Adamantinomas. B. Papadimitriou.—p. 556.
Postoperative Healing of Roentgen Irradiated Tissues. S. Frey.—p. 574.
*Experimental Studies with a Zinc-Sulphur Preparation in Conservative Treatment of Surgical Tuberculosis. N. von Hedry.—p. 588.
Origin and Course of Isolated Fractures of Transverse Process of Lumbar Vertebrae. T. Ott.—p. 605.
*Indications for Tuberculin Test in Surgery. E. Melzner.—p. 621.
Postoperative Motor Disturbances of Stomach: I. Anastomotic Ileus (Vicious Circle). F. Reischauer.—p. 639.

Treatment of Surgical Tuberculosis.—Von Hedry relates his experience, clinical and experimental, with the use of zinc sulphate in the treatment of tuberculous glands and fistulas and cold abscesses. In fourteen cases of abscessed cervical lymph nodes, the injection of a 10 per cent zinc sulphate-glycerin emulsion effected a cure in every case. Of six similar patients with fistula, five were cured and one was improved. Of fourteen patients with cold abscesses, eleven were cured and two were improved; one remained unaffected. Six cases of tuberculous fistula were treated with 1 to 5 per cent zinc sulphate irrigations and the insertion of pencils containing from 10 to 15 per cent of zinc sulphate. Three cases were cured; two were improved, and in one the treatment was a failure. These pencils contained zinc sulphate, 10-15 Gm.; sodium chlorate, 3-5 Gm.; cocoa butter, 80-85 Gm. This mass was formed into pencils measuring 4 mm. in thickness and 10 cm. in length. The author ascribes to zinc sulphate a high antiseptic power, an astringent action, and a stimulative effect, without injury to surrounding tissues or cumulative effect.

Diagnostic Value of Tuberculin Test in Surgical Diseases.—This test is regarded by Melzner as being unreliable for diagnostic purposes even in the most pronounced cases of tuberculosis. A positive reaction is worthless. In one half of the many cases studied by the author, a positive reaction was present in positively nontuberculous cases. The same is true of a negative reaction. In 100 cases of proved tuberculosis, the reaction was negative in seventy-eight. The best results were obtained in cases of bone and joint tuberculosis, although even then they were not dependable. Melzner feels that this test should be discarded because of its unreliability.

145: 191-378 (Dec. 14) 1928

Roentgen Picture and Clinical Significance of So-Called Cartilaginous Nodes of Spinal Column. W. Müller.—p. 191.
*Treatment of Perforated Gastric and Duodenal Ulcer and of Peptic Jejunal Ulcer. F. Schwarz.—p. 212.
Postoperative Motor Disturbances of Stomach: II. Spastic Blocking as Cause of Arteriomesenteric Closure of Duodenum. F. Reischauer.—p. 229. C'cn.
Dilatation of Sphincter Ani. E. Melzner.—p. 249.
Clinical Significance of So-Called Cholemic Hemophilia. E. Seifert.—p. 268.
Physiologic Operation for Undescended Testis. H. Schloessmann.—p. 276.
High Voltage Treatment of Choroid Plexus in Cases of Chronic Increased Intracranial Pressure. L. Heidrich, M. Haas and M. Silberberg.—p. 285.
Investigations on Parabiosis. F. Dannheisser.—p. 304.
Treatment of Experimental Tetanus with Tribromethyl Alcohol. M. Kaspar.—p. 313.
*Thrombosis and Postoperative Tendency to Thrombosis. R. Syller.—p. 322.
Roentgen Diagnosis of Chronic Appendicitis. L. Fedder.—p. 342.

Perforation of Gastric and Duodenal Ulcers.—The 126 patients reported on by Schwarz were subjected to operation. Thirty-five patients died, a mortality of 27 per cent. Among twenty-eight patients subjected to operation during the years from 1912 to 1920, fifteen died, a mortality of 53.5 per cent. In the remaining ninety-eight cases treated by operation between 1920 and 1927, the mortality was 20 per cent (twenty deaths). Up to 1920 only 25 per cent of the patients were operated on within six hours after the perforation; 46.4 per cent within twenty-four hours and 28.5 per cent later than that. Of the patients seen in the second period of time, 52 per cent came to operation within six hours, 35.6 per cent within twenty-four hours and 11.5 per cent after twenty-four hours. Of the fifty-eight patients operated on inside of six hours, only one died, from a heart lesion, the operation having proved to be too great a strain for his heart. In the twelve hour interval group, the mortality was 43.2 per cent; in the twelve to twenty-four hour group (twelve cases) the mortality was 8.3 per cent, and in the later than twenty-four hours group, the mortality was 89.4 per cent (seventeen deaths among nineteen cases). Gastric ulcer gave a higher mortality (33.3 per cent) than duodenal ulcer (23.3 per cent). The operation that gave the best results was suture of the perforation combined with a posterior gastroenterostomy (23.8 per cent mortality). The author does not, however, recommend this procedure as a routine, but emphasizes the fact that in some instances some other operation should be performed. If the general condition of the patient permits, and technical difficulties do not prevent, suture and resection are justified if done by a competent surgeon.

Incidence of Thrombosis.—The necropsy reports in 955 cases with reference to the presence of thrombosis are reviewed by Syller. Seventy-six cases of thrombosis (8 per cent) were found. Forty-seven of these were postoperative complications. There were thirty-five cases of pulmonary embolism, twenty-seven ending in death of the patient. In all local thromboses, the thrombus occurred near the site of the operation, and usually the wound was infected. The veins of the pelvis and of the extremities were most often affected in these cases, between the ages of 40 and 80. When the thrombus formed at a distance from the wound, infection rarely played a rôle. The author asserts that postoperative complications of every sort, especially phlebitis and thrombosis, always occurred in cases manifesting an increased tendency to conglutination on the part of the blood platelets even when the erythrocyte sedimentation was prolonged. Due regard for these facts makes it possible to take appropriate steps to guard against their occurrence; hence erythrocyte sedimentation and blood platelet conglutination (Aynaud-Heusser reaction) should be determined before any operative intervention is undertaken.

Jahrbuch für Kinderheilkunde, Berlin

122: 253-374 (Jan.) 1929

*Casein-Free Diet in Diarrhea in Infants. L. Moll.—p. 253.
Peristalsis of Small Intestine. A. Peiper.—p. 263.
*Low Voltage Roentgen Therapy of Acute Inflammations. A. Viethen.—p. 284.
Classification of Clinical Forms of Scarlet Fever in Children. A. A. Koltypin.—p. 302.
Malignant Forms of Scarlet Fever. S. I. Edelmann.—p. 322.
*Clinical Study of Scarlatinal Nephritis. B. S. Hirschberg and M. E. Ssucharewa.—p. 340.
Psychology of Destitute Children. J. S. Galant.—p. 356.

Casein-Free Diet in Diarrhea in Infants.—Moll describes an "einstellungsdiät," a sort of transition diet which is intended to stop the great loss of water and increase the child's weight in acute diarrhea. It must have a high caloric value and contain sufficient protein to satisfy the child's needs and enough salt to make up for the loss of mineral, so combined as to reestablish normal conditions in the intestine. The author makes a distinction between younger and older infants and prescribes for the latter a flour diet in the form of cakes or rice puddings containing eggs, and diluted with tea, calcinated whey, and human or almond milk; the younger infants receive a vegetable diet in the form of almond milk. This transitory diet may be kept up for as long as two weeks, without causing loss of weight, during which time the organism may return to normal. Moll quotes the experiences of other authors with his pudding diet.

Low Voltage Roentgen Therapy of Acute Inflammations.—Viethen observed about 200 cases of various local infections such as phlegmons and furuncles, and also gynecologic diseases, such as puerperal parametritis. He reports the effects of low voltage doses of roentgen rays on leukocytes and erythrocytes. The time of exposure is very important. Prophylactic irradiation is as useless as late exposure when the body no longer has any resistance. Irradiation in acute inflammations first increases the severity of the symptoms; then they disappear. This acceleration of inflammatory processes, however, is sometimes dangerous and would be fatal in appendicitis or otitis media. The author reports various inflammatory diseases in which low voltage doses of roentgen rays were applied with good results.

Clinical Study of Scarlatinal Nephritis.—In 845 cases of scarlet fever Hirschberg and Ssucharewa found nephritis 167 times. Boys are more predisposed to nephritis than girls (25 per cent: 15 per cent). As far as the age is concerned, the number of cases of nephritis increases with the years: children between 8 and 12 showed the highest percentage (23.2 per cent); those below 1, the lowest (4.3 per cent). Nephritis may occur at any stage of scarlet fever; most cases were found in the third week, but in the second and fourth weeks also many cases were noted, whereas in the first week there were only 11.9 per cent. During the whole course of nephritis, the vascular system is considerably affected and the consequences are increased blood pressure, cardiac dilatation and accentuation of the second sound. These symptoms are considered very important and reliable in diagnosis. Increased weight announces the approaching nephritis. The prognosis is usually favorable: 65 per cent of the patients made a complete recovery, 14.4 per cent showed great improvement, 3.6 per cent showed some improvement and 11.3 per cent died. In 5.7 per cent the outcome was unknown.

Klinische Wochenschrift, Berlin

8: 49-96 (Jan. 8) 1929

Latest Results of Investigations on Epidemiology. F. Neufeld.—p. 49.
Bartonella Muris-Ratti: Its Transmission to White Mice and a Specific Bartonella Muris-Musculi N. Sp. in Splenectomized White Mice. V. Schilling.—p. 55.
Etiology and Pathogenesis of Yellow Fever. M. H. Kuczynski.—p. 58.
C'cn.
Relation Between Ammonia Content and Hydrogen Ion Concentration in Urine of Patients with Heart Disease. H. Perger.—p. 63.
Existence of Histamine-Like Substance in Dermographism. H. Kalk.—p. 64.
*New Carbohydrate Substitute for Treatment of Diabetes. E. Kaufmann.—p. 66.
*Ultraviolet Ray Therapy for Infantile Eczema. K. Huldschinsky.—p. 71.
Relation Between Growth of Colon Bacilli in Small Intestine and Liver Therapy in Pernicious Anemia. H. Adler, F. Sinek and F. Reimann.—p. 72.
Biology and Staining of Spirochaeta Pallida. S. Bergel.—p. 72.

New Carbohydrate Substitute for Treatment of Diabetes.—The fact that the capacity for the oxidation and utilization of dextrose is deficient in diabetic patients has led to many experiments to obtain an anhydrous sugar. A disadvantage of most preparations was the fact that they were not pleasing to the taste and did not satisfy the craving of diabetic patients for sweets. Kaufmann tested a new sugar which he terms the "sia" sugar. He describes it as an alcohol almost white in color, of solid consistency and of a pleasing sweet taste. He experimented on a number of animals and later applied it in the treatment of eight diabetic patients. He found that this preparation has a favorable influence on metabolism, tolerance, glycemia, glycosuria and on the acetone elimination. It is relatively easy to digest and is quickly absorbed. Up to 50 Gm. was given and no complications were observed. On account of the pleasing sweet taste it was well liked by the patients. In its newest form it can be used like ordinary sugar in the preparation of foods. It is a valuable substitute for carbohydrates in the diet of diabetic patients.

Ultraviolet Ray Therapy for Infantile Eczema.—Huldschinsky found that silver therapy in combination with quartz lamp irradiation was effective in the treatment of infantile eczema. His method was as follows: A 3 to 5 per cent solution of silver is brushed on the eczematous area. This application is either left to dry or, while still moist, is exposed to the quartz lamp at a distance of from 50 to 15 cm.

During this irradiation the application can be repeated. The treatment is continued until the applied silver solution becomes black. This usually requires from one to five minutes. The quartz lamp irradiation can be replaced by exposure to the sunlight. In this case, however, the treatment requires more time, generally from ten to thirty minutes. The effects of the treatment appear immediately. The weeping eczema becomes dry, the formerly reddish areas appear black and shiny and the itching decreases. On the following day the dried and blackened surface covering begins to peal and a fresh healthy skin appears underneath. The weeping eczema is covered with a scab. Between the irradiation treatments the eczematous areas were left alone. The cases described by the author show that in some instances good results were obtained after five or six treatments. He states, however, that dry chronic eczema frequently requires as many as twenty irradiations. Huldschinsky suggests that this combination therapy might also prove effective if applied in other skin diseases.

Medizinische Klinik, Berlin

25: 93-132 (Jan. 18) 1929

Treatment of Rickets. L. Langstein.—p. 93.
*Etiology of Asthma. K. Hansen.—p. 97.
*Kefir and Yoghurt Treatment of Abdominal Diseases. J. Kleeberg.—p. 98.
Clinical Aspects of So-Called Pseudotumor of Brain. E. Redlich.—p. 101. C'cn.
Gold Therapy of Pulmonary and Laryngeal Tuberculosis. L. Rickmann.—p. 103.
Treatment of Chronic Gonorrhea in Women with Living Vaccines. A. Loeser.—p. 106.
Occurrence of Hemolytic Streptococcus in Healthy Persons and Its Significance for Prophylaxis of Scarlet Fever. K. Meyer and W. Löwenberg.—p. 107.
Phenobarbital in General Practice. W. Blumenthal.—p. 111.
Treatment of Erosions of Cervix with Animal Charcoal. E. Tichy.—p. 112.
New Instrument Which Facilitates Venous Stasis in Intravenous Injections. L. Feilchenfeld.—p. 113.

Etiology of Asthma.—Hansen states that a physician diagnosing a case of asthma should attempt to ascertain the allergic factor from the anamnesis. He asserts that a careful investigation of the occupational surroundings and of the living conditions of the patient will usually reveal an allergic agent. Skin tests can be used to determine his susceptibility to an allergen. The author also points out that a psychogenic factor frequently is the etiologic moment in asthma. He concludes that in order to determine the etiology correctly, it is necessary to consider the exogenous as well as the endogenous factors.

Kefir and Yoghurt in Treatment of Abdominal Diseases.—According to Kleeberg, kefir and yoghurt are very helpful in the treatment of disorders of the stomach and of the intestine. He describes methods for their preparation. The acid which they contain should be only lactic acid. In yoghurt the percentage of lactic acid should not go much below 1 and should not exceed 1.2. Kefir may contain up to 2 per cent of lactic acid. The author states that both types of sour milk have a certain biologic effect, which is dependent on their chemical properties. Considerable amounts of free lactic acid check the excessive growth of the colon bacillus, particularly in the duodenum. The free hydrogen ions of the lactic acid influence fermentation and decomposition processes. Both kinds of sour milk are rich in vitamins A and D, and kefir is a valuable stimulant for the appetite. The author finds yoghurt very effective in the treatment of dysentery. For achylia kefir should be given. In this case the lactic acid content can be increased by prolonged fermentation. For the constipation that frequently appears with gastric ulcers, Kleeberg prescribes a mild yoghurt. In diseases of the biliary tract, either kefir or yoghurt may be given. Yoghurt is also helpful for patients with chronic appendicitis who do not want to undergo an operation. In appendectomy these sour milk treatments are valuable before as well as after the operation. For chronic constipation kefir is considered the best therapeutic method. Kleeberg points out that if the physician prescribes these forms of sour milk, the individual case ought to be considered, and it should be specified what amount and what kind should be given, and also what percentage of lactic acid the milk should contain. The author asserts that ordinary sour milk will not give the same therapeutic results as either kefir or yoghurt.

Münchener medizinische Wochenschrift, Munich

76: 49-92 (Jan. 11) 1929

Psychologic Foundation of Anamnesis. G. Grund.—p. 49.
Diagnosis and Surgical Treatment of Exophthalmos. F. Böhm.—p. 51.
Injuries on Motor Apparatus Caused by Skiing. K. Gebhardt.—p. 54.
Harmful Effects of Hand-Bath in Open Injuries of Hand or Fingers. F. Schnek.—p. 57.
*Method for Preservation of Blood for Blood Sugar Test. H. Lax and I. Szirmai.—p. 58.
Scarlet Fever from Point of View of Social Hygienist. A. Schlossmann.—p. 60.
Enforcement of Law Concerning Venereal Diseases in Germany. K. F. Funk.—p. 63.
Syphilis of Nervous System. M. de Crinis.—p. 65.
Results of Salt-Free Diet in Pulmonary Tuberculosis. G. Baer, A. Herrmannsdorfer and H. Kausch.—p. 68. C'cn.

Method for Preservation of Blood for the Blood Sugar Test.—Lax and Szirmai added 1 per cent of sodium fluoride and 0.1 per cent of mercuric chloride to blood and prevented glycolysis as well as bacterial decomposition. Blood prepared in this manner did not change its sugar content even after storage for thirty days in the incubator. To prove that the presence of the preservative agents had no influence either on the albumin precipitation or on the sugar reduction process, they applied Bang's test and the Folin-Wu method. The two tests gave identical results.

Wiener klinische Wochenschrift, Vienna

42: 33-64 (Jan. 10) 1929

Treatment of Syphilis of Aorta. R. Hift.—p. 33. C'td.
*Tonsillectomy in Relation to Scarlet Fever. J. Zikowsky.—p. 37.
*Clinical Aspects of Periarteritis Nodosa. K. Blum.—p. 40.
Congenital Syphilis. K. Hochsinger.—p. 43.
Diagnosis and Treatment of Trachoma. V. Hanke.—p. 45.
*Development of Cancer in Fistula of Thorax. W. Schey.—p. 49.
Therapeutic Value of Bismuth Silicate. S. Vas.—p. 50.

Tonsillectomy in Relation to Scarlet Fever.—Zikowsky states that among 1,013 patients with scarlet fever, only twenty-three had previously undergone a tonsillectomy. Whether this is due to the fact that persons whose tonsils have been removed are less susceptible to scarlet fever infections, or to the circumstance that only a small percentage of the population of Vienna undergo tonsillectomy, could not be ascertained. Many of the patients whose tonsils had not been removed developed serious complications. During the first week the tonsils were usually red and swollen and showed yellowish strips or spots. Later these swellings disappeared, but a sort of secondary scarlet fever developed in the form of the typical scarlet fever glands. If the vitality of the patient was much reduced and the organism was not strong enough to combat this second attack, such complications as acute nephritis and otitis media developed. Dangerous also was lymphadenitis, which frequently followed tonsillitis or peritonsillitis. A careful observation of the twenty-three patients who had undergone a tonsillectomy proved that the scarlet fever in these patients was usually milder and showed fewer complications. Scarlet fever heart and scarlet fever arthritis were nearly the only complications noticed in these cases. Zikowsky does not make a concluding statement concerning tonsillectomy. He thinks, however, that the tonsils are an important factor in scarlet fever. He assumes them to be the depository of the scarlet fever virus and probably also the portal of entry for the disease.

Clinical Aspects of Periarteritis Nodosa.—A case of periarteritis nodosa is described by Blum. The symptoms were multiple neuritis, multiple myositis, gastro-intestinal disorders and marasmus. The gastro-intestinal symptoms were the most severe. They gradually developed into mesenterial embolism which necessitated removal of 75 cm. of the small intestine. Microscopic examination of the excised section revealed thrombosis of the small arteries and hemorrhagic phlegmons of the entire wall of the intestine. In the mesentery arteritis and thrombosis of the vessels were observed. The author assumes that this tonsillar infection was the etiologic agent of the disease which after fifteen weeks terminated in the death of the patient.

Development of Cancer in Fistula of Thorax.—Schey reports a case in which a fistula of the thorax developed into a cancer. Seventeen years previously the patient, now aged 63, had undergone an operation for abscess of the thorax. At that time tuberculosis of the bones was also present and in a second operation, which followed six weeks later, parts of several

ribs were excised. The resulting wound never healed completely. A fistula remained, but it did not cause much pain. After a period of seventeen years, a squamous cell epithelioma, starting from the edge of the skin, had developed. The author points out that this carcinoma belongs to the group of cancers which develop as a consequence and under the influence of chronic inflammatory processes. It spread over the pleura up to the spinal column and destroyed several vertebrae. The case is unusual because the cancer did not metastasize and no clinical manifestations were observed which indicated the destruction of the vertebrae.

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New Gold Preparations in Pulmonary Tuberculosis. A. Fischer.—p. 465.
Resistance of Skin to Tubercle Bacillus. O. N. Podwyssotzkaja and M. A. Linnikowa.—p. 474.
*Idiopathic Exudative Tuberculous Pleurisy. M. Häutemann.—p. 483.
Reasons for Rejection of Ranke's Theory of Allergy in Trypanosomiasis and Tuberculosis. H. Rieckenberg.—p. 491.
*Influence of Roentgen Irradiation on Intensity of Tuberculin Skin Test. T. Abramowitsch and I. Rabuchin.—p. 495.
*Effect of Various Therapeutic Procedures on Blood Platelets. L. Vajda. —p. 509.
Effect of Salt Baths. A. Bretschneider.—p. 512.

So-Called Idiopathic Exudative Tuberculous Pleurisy.—Häutemann quotes a number of authors who, like himself, recognize the tuberculous origin of exudative pleurisy. In most cases the pleurisy is the only manifestation of the tuberculosis. The favorable prognosis in these cases is due to the fact that the exudate acts as a bactericide and an immunifacient.

Influence of Roentgen Irradiation on Intensity of Tuberculin Skin Test.—This article is the continuation of an investigation on roentgen irradiation and the tuberculin skin test. The authors first studied the intensity of the reaction of irradiated antituberculin on the application area; they now report on the skin test after injections of irradiated tuberculin into irradiated skin. The intensity of the irradiation and the dose of the tuberculin varied in the different patients. Abramowitsch and Rabuchin studied 113 patients. Irradiation of the skin in most cases resulted in a decrease in the intensity of the tuberculin reaction, especially within the first twenty-four and the following forty-eight hours.

Behavior of Blood Platelets in Various Therapeutic Procedures.—Vajda's experiments are mostly concerned with the blood platelets of patients with pulmonary tuberculosis. He could observe quantitative and qualitative differences: The blood platelets increased or decreased in number or remained nórmal according to the various pathologico-anatomic processes, and changed their form or their color according to the various exogenic stimuli, either of toxic infections or of therapeutic nature, if the latter were strong enough to cause a reaction of the thrombopoietic apparatus.

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56: 65-128 (Jan. 12) 1929

*Treatment of Cholemic Hemophilia. E. Seifert.—p. 66.
*Habitual Subluxation of Cervical Vertebrae. V. Chlumský.—p. 69.
Further Development of Tribromethyl Alcohol Narcosis. B. Martin.—p. 72.
Technic of Amputations of Leg with Regard to Prostheses. R. Görlach. —p. 74.
Peritonitis Following Intestinal Perforation in Case of Ambulatory Paratyphoid B. A. Pop.—p. 77.
*New Method of Closure of Parotid Fistula. L. Székely.—p. 79.
*Care of Appendix Stump. W. von Oettingen.—p. 82.

Treatment of Cholemic Hemophilia.—Seifert expresses the belief that the tendency to postoperative cholemic hemorrhages is not to be ascribed to the degree of the icterus and its associated symptoms, to the extent of liver injury, to the underlying original disease, or to the presence or accumulation of bile elements in the blood, but rather to the absence of bile in the intestine. This belief is based on clinical observations and experimentation with animals. When the icterus is of short duration, the blood coagulation time is normal. If the icterus is of long duration, the coagulation time is prolonged and hemorrhages may occur. Believing that lack of vitamin D is a primary cause, the author advocates artificial heliotherapy before operation until the coagulation time becomes normal, which occurs probably in about two weeks.

Habitual Subluxation of Cervical Vertebrae.—Chlumský relates the case of a girl, aged 16, who five years before fell from an open window, a distance of about 2 feet, and sustained a subluxation of the cervical vertebrae—the atlas and the axis. She made a reposition herself, but recurrences of the luxation finally called for medical aid. On roentgen examination it was found that both vertebrae were intact but could easily be displaced, so that the head would fall forward with the chin on the chest. Manual reposition could always be effected. At no time did the patient complain of any symptoms other than the inconvenient position. Prolonged support of the head brought about a complete cure.

Treatment of Parotid Fistula.—Székely raises two flaps from the mucous membrane of the cheek and inserts them into the fistulous canal, thus furnishing it with an epithelial lining. Thus, a cure is effected. He cites one case in which a fibroma was removed from the cheek in the vicinity of the parotid duct. A fistula resulted, with no tendency toward healing. After operative intervention, functioning of the duct was restored.

Care of Appendix Stump.—The procedure described by von Oettingen is the usual one of burying the stump in the cecum.

56: 129-192 (Jan. 19) 1929

*Subdural Intracranial Treatment of Tetanus with Tetanus Antitoxin. H. Hartleib.—p. 130.
Roentgen Diagnosis of Renal Calculus. O. Portwich.—p. 133.
Significance of Fahreus Reaction in Echinococcosis. K. G. Stenzel.—p. 136.
*Chordoma of Superior Maxilla. S. Rubaschow.—p. 137.
*Traumatic Collapse of Transverse Colon. W. Obadalek.—p. 138.
Treatment of Fractures: Modification of Braun's Splint for Use with Kirschner's Nail Extension Method. A. Peters.—p. 141.
Fixation of Drainage Tubes and Permanent Catheters. H. Edelmann. —p. 142.

Intracranial Injection of Tetanus Antitoxin.—Hartleib defends the subdural intracranial injection of tetanus antitoxin in cases of tetanus and cites one very severe case in which intravenous and subcutaneous injections failed to control the convulsions, whereas a single subdural injection of 100 units, the serum being deposited over the brain surface, promptly effected a cure.

Chordoma of Superior Maxilla.—Rubaschow relates the case of a child, aged 24 hours, that was unable to nurse because of a mass projecting from its mouth, which completely covered the orifice. When the mouth was opened widely, the mass was seen to have a pedicle that sprang from the alveolar margin in the middle of the superior maxilla. It was excised. On microscopic examination it proved to be a typical chordoma.

Complete Collapse of Transverse Colon Result of Trauma.—Obadalek cites the case of a boy, aged 4 years, who fell down a hill, a distance of about 45 feet. When picked up, he was unconscious. The symptoms present led to a diagnosis of cerebral concussion and fracture of the base of the skull. The abdomen was slightly distended but not tympanitic. There was no tenderness on pressure. On either side of the umbilicus was an area of suggilation. On the fourth day after the accident, the child regained consciousness and the bowels moved spontaneously. Recovery was uneventful. Except for slight loss of appetite, no other symptoms referable to the abdomen were noted. Three years later the boy entered the hospital with a diagnosis of acute intestinal obstruction. The history was that soon after his dismissal from the hospital after recovery from the fall, the boy began to complain of pain in the region of the umbilicus, closely related to the taking of food. This pain steadily grew worse until suddenly the symptoms of intestinal obstruction supervened. Laparotomy was performed. The small intestine, the cecum and the ascending colon were much dilated. The middle portion of the transverse colon, about 7 cm., was collapsed and shrunken, forming a hard, dense plate of tissue, about the size of the thumb, exceedingly fibrous. The edges of this segment terminated abruptly in entirely normal colon. Section of the fibrous tissue was immediately followed by a natural dilatation of the colon and the speedy return to normal of the proximal portions of the intestine. Exsection and anastomosis were not deemed necessary. The boy recovered from the operation and did well afterward. The author is of the opinion that the fall sustained three years previously was directly responsible for this condition of shriveling of the transverse colon.